

•Consumers'• Research Bulletin



January 1950

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CONSUMERS' RESEARCH



Vol. 25 • No. 1

BULLETIN

January 1950

Off the Editor's Chest

THE day when "the customer is always right" — well, nearly always — is slowly making its appearance again after a very dark period during which the consumer has had to put up with poor service, inadequate selections, shoddy merchandise at high prices, and a general attitude on the part of sales personnel that he must take what they had to offer, or else. Now the trade journals and business columns are filled with speculations and analyses by experts of one sort or another who seek to find out why movie attendance has fallen off, sales of men's suits and other furnishings are down, why the luxury market for furs, jewelry, and night club entertainment has slumped drastically, and why appliance dealers, except in a few specialized lines such as television and refrigerators, are having difficulty in disposing of their quotas.

The consumer is being looked at with new respect as a person to be cultivated and catered to, for it appears, according to the statisticians, there is adequate money in the bank for a considerably larger volume of spending than is currently being done. One business commentator has come up with the interesting explanation that the public is "choosy," and prefers to save rather than spend, until prices and values are more attractive. Even the politicians are beginning to discover or at least

pay lip service to the consumer. As one Administration spokesman observed in connection with a grandiose proposal to subsidize farm prices with taxpayers' funds, "Some of these days, unless we pay a little more attention to the consumers of this country, they may rise up and make it hard for us to continue a farm program. . . ." [meaning a program to subsidize farmers at the cost of taxpayers and consumers].

About the only group still operating pretty consistently on a "Public be damned" basis is organized labor. In Chicago, for example, the butchers' union has voted a ban on the sale of pre-packaged meat because its sale would reduce the demand for the services of union butchers. In Newark, N.J., the teamsters voted to boycott a new truck terminal which would have taken a considerable number of big trailers off busy Newark streets and relieved traffic congestion. The union took the position that this elimination of traffic congestion deprived their members of many job-hours, and it refused to permit use of the terminal. The recent coal strike by miners for higher remuneration, at the expense of the consumer who would pay for it in higher prices of coal, was strenuously fought by the owners, who are already aware of the consumer's power to

(Continued on page 25)

Consumers' Research functions to provide unbiased information on goods bought by ultimate consumers. For their benefit (not for business or industry), CR carries on and publishes in its Bulletin the results of tests and research on a wide variety of goods, materials, and appliances. CR, a non-profit institution, is organized and operates as a scientific, technical, and educational organization.

Scientific and Technical Experts and Editors: F. J. Schlink, R. Joyce, Dwight C. Aten, M. C. Phillips, Erma A. Hinek, and A. R. Greenleaf. **Editorial Assistants:** Mary F. Roberts and B. Beam.

Symbols used to indicate sources of data and bases of ratings: A—recommended on basis of quality; AA—regarded as worthy of highest recommendation; B—intermediate with respect to quality; C—not recommended on basis of quality; CR—information from Consumers' Research's own tests or investigations; 1, 2, 3—relative prices, 1 being low, 3 high. Note that price and quality are completely differentiated in CR's listings; a quality judgment is independent of price; 49, 50—year in which test was made or information obtained or organized by the staff of Consumers' Research.

It will be advantageous if you will, whenever possible, send prompt notice of change of address at least 5 weeks before it is to take effect, accompanying your notice with statement of your old address with name in full. At least a month's notice must be given in any case. This rule, however, regarding long clearance notice does not apply to military personnel.

*R. K. will, of course, gladly change addresses for men and women in the services as often as required by changes in station and other circumstances.

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is on file in many school, college, and public libraries and is indexed in Industrial Arts Index and in the Readers' Guide to Periodical Literature.

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CORRECTIONS TO CONSUMERS' RESEARCH BULLETIN OF

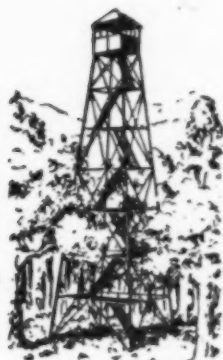
JANUARY 1950

Automatic Wash-
ing Machines
p. 29

Coronado, Type G L49CP. Change drying effectiveness from "only fair" to "very good." Water left in clothes was 65% of dry weight of clothes, not 165% as stated.

Hotpoint, Cat. No. 20LC-2. Change drying effectiveness from "only fair" to "very good." Water left in clothes was 75% of dry weight of clothes, not 175% as stated.





The Consumers' Observation Post

SALES OF COFFEE have soared upward in recent months, stimulated by rumors that the price of roasted coffee would jump to \$1 a pound. Consumers who stocked up, however, are going to consume a lot of stale coffee, for freshly roasted coffee in the bean will keep satisfactorily for only 10 to 14 days. Vacuum-packed coffee will not, on the average, be fresher than ordinary bulk coffee a week after it was roasted, and it does not improve with age. The only way to lay in a supply of coffee is to purchase green coffee beans and roast them in small quantities as needed. It is expected that the price of coffee will continue to be high because the planting of coffee trees, particularly in Brazil, which supplies about half the world export production, has not kept pace with rising demand.

* * *

THE COMMON COLD, so prevalent at this time of the year, is sometimes an allergic response in susceptible persons to a specific protein, advises the American Medical Association. In such cases, some one of the new antihistamine drugs, if taken in time, is often effective in warding off a cold or in relieving the severity of the symptoms. There are a number of brands now being marketed on an over-the-counter basis with the customary ebullient claims. Those who act as guinea pigs for the new "remedies" should keep in mind that antihistaminic drugs are not effective in every allergic person and that in varying degrees the drugs produce in some persons unpleasant reactions such as drowsiness, dizziness, insomnia, and stomach irritation. Such a reaction may involve positive elements of danger, for example, in certain types of factory work or close professional work, or in driving a car or truck.

* * *

THE BUYERS' MARKET IN AUTOMOBILES is beginning to make its appearance in certain parts of the country, reported The Wall Street Journal in October 1949 (before the steel strike). Price concessions are not always made as direct price reductions, but appear as extra equipment included at no extra charge as standard equipment, including radio, heater, seat covers, or by the dealer's offering more on a trade-in than the old jalopy is worth—a traditional method of price cutting. One example of the variation in price reductions, which depend on the difficulty a particular dealer is having in marketing his new cars, cited by the newspaper, is that of a New York shopper with a 1948 Crosley station wagon to trade in. A Chevrolet agency made him no offer whatever; at one Ford agency he was offered \$250 on a turn-in; a second Ford dealer would allow \$350; while a Hudson agency offered a \$550 allowance. It obviously pays to do considerable scouting these days, particularly in big cities, such as New York, Philadelphia, Boston, Los Angeles, and Detroit.

* * *

TO WASH OR TO DRY CLEAN SOME PARTICULAR FABRIC is a problem that confronts the housewife and the laundryman alike these days. Glazed chintz may, for example, be finished with a wax or starched glaze, which when washed will gum up and form wads on the surface of the cloth, according to the American Institute of Laundering. Look for a label on such fabrics that guarantees washability; such a label indicates that the fabric has been finished with a synthetic resin or plastic baked into the chintz at high temperature. The Institute also warns that some of the synthetic resins used in crush-and-crease-resistant finishes have an affinity for chlorine used in the bleaching process; the result may be discoloration of a white garment. Trouble is also being experienced with what is termed "a false waffle pique," embossed on a plain woven fabric, which also has an affinity for chlorine and which loses its indentations when ironed.

SOFT DRINKS CAN CAUSE DAMAGE TO THE LIVER, according to studies made at Toronto's Banting Institute and reported by Dr. Charles Best. In the United States 50 to 75 percent of the cases of cirrhosis of the liver are ascribed to overuse of hard liquor, and the disease is believed to be primarily due to a faulty diet. The Canadian experiments on animals demonstrated that cirrhosis of the liver was also caused by excessive amounts of sugar consumed in the form of soft drinks. An actual case was cited of a victim of cirrhosis of the liver who drank a dozen bottles of soft drinks daily, and did not eat properly.

* * *

CHEMICAL-LADEN SMOG discolored the paint on more than a hundred homes in a suburb of Cincinnati not long ago. The chemical that was responsible for the damage was reported by a health officer to be hydrogen sulfide. (Sulfur dioxide in the air may cause paint to peel off.) People in sections where there are industrial fumes or smoke in evidence, and who are experiencing similar trouble, may well have their health departments check the chemical content of the atmosphere to determine whether or not hydrogen sulfide in the atmosphere may be the cause of their difficulty.

* * *

MUSIC LOVERS AND HIGH-FIDELITY AUDIO HOBBYISTS can obtain all component parts for assembly into a home- or custom-built home music system, but the apartment dweller who has no basement, unused closet or stairway in which to house his amplifier equipment is likely to have a difficult time in finding a suitable and attractive cabinet that is moderately priced. What is needed, suggests Audio Engineering, is for some furniture manufacturer to turn out a line consisting of about four cabinets in each of two designs, period and modern, to harmonize with standard furniture, that will provide space for record changers or turntables, AM and FM tuners, amplifiers, and speakers, with at least one model large enough to house a tape or wire recorder. The magazine estimates that five to ten thousand cabinets could be sold every year by some enterprising manufacturer.

* * *

SYNTHETIC CHERRIES MADE OF SUGAR AND GLUCOSE, covered with a thin, insoluble edible skin made from seaweed, flavored with juice from natural Morello cherries are being imported into the United States from Great Britain. The unappetizing-sounding concoction is quaintly named "Chellies." One is tempted to ask if this is typical of the kind of consumers' goods that will be produced under a socialist government. In the old days we were accustomed to thinking of England as putting out good substantial products of high quality exemplified by Harris tweeds, cashmere sweaters, and fine bone china.

* * *

KING-SIZE CIGARETTES ARE GAINING IN POPULARITY, particularly among women, according to one company's study. More tobacco goes into each large-size smoke than one of shorter length. This trend is to be deplored in the light of a recent abstract, in the Journal of the American Medical Association, of a German study which indicated that women were particularly susceptible to the toxin of nicotine. Disorders of the thyroid were nearly seven times as frequent in women who smoked as in those who did not, of 5458 women observed in the course of the study. Other endocrine glands were found to be unfavorably affected also.

* * *

MARKET SURVEYS AND CONSUMER PREFERENCE POLLS are being scrutinized by the National Better Business Bureau because of an increasing use of such findings as the basis for sales and advertising claims. The NBBB in the past year has set up a new division of research practices to combat fake use of "research" and poll-taking techniques in door-to-door selling and to investigate the questionable use of research data in advertising. It is high time, for poll-taking is big business. One professional marketing research organization has estimated that the national annual expenditure for market research is around thirty million dollars. The consumer who fills out and answers questionnaires "for free" should be impressed with the size of the industry he is supporting by his unremunerated cooperation.

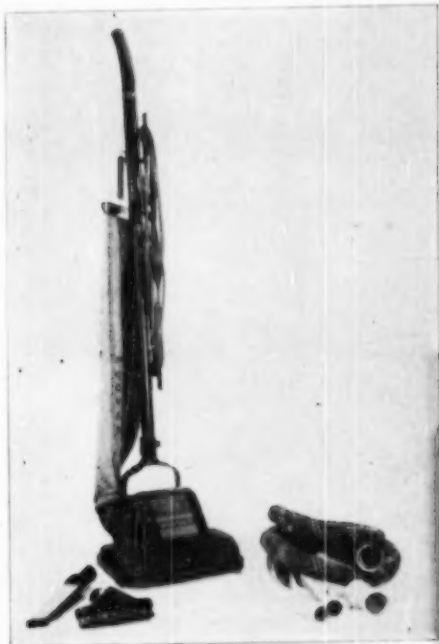
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THE PLANS OF THE FEDERAL GOVERNMENT for continued and extended use of taxpayers' money to subsidize farmers and so keep prices of food higher than the

(The continuation of this section is on page 37)



Westinghouse De Luxe Automatic Model F-9



Hoover Model 115

Recent Vacuum Cleaner Tests

IN SEVERAL of the reports of tests on vacuum cleaners which have appeared in past issues of CR BULLETINS, CR has warned users against the practice of operating a revolving-brush cleaner in a stationary position on a rug while the attachments are being used. This warning is needed because a cleaner with its brush revolving will tend to wear the rug and to remove any rug pile which is not fastened securely into the rug backing.

In the present series of tests, it was found that one cleaner, the *Wards Supreme*, was picking up an unusually large amount of rug nap during the normal test procedure. The amount of nap removed was so great as to give the false indication that the cleaner was removing more of the synthetic dirt mixture from the rug than had been applied to it originally. On examination, it appeared that the combination of very good suction and the stiff bristles used in the revolving brush gave a cleaning action which was too drastic. Because of these findings, a new and simple test was included in the present test procedure in addition to the regular

tests for dirt-removing ability, measurements of current leakage, voltage breakdown, radio interference, and input power. This consisted of operating the cleaner for 15 minutes on a medium-pile rug in a stationary position. At the end of this period the rug is examined to determine the degree of nap-wear due to the action of the revolving brush.

Subscribers are referred to the March 1947 issue of CR BULLETIN for a more complete explanation of the test procedures used in testing vacuum cleaners. The chief basis of the ratings, of course, is dirt-removing ability. Prices given do not include attachments, unless otherwise noted. All cleaners reported withstood the proof-voltage test. The amount of radio interference created in each case was considered excessive. Ratings are cr49.

A. Recommended

Westinghouse De Luxe Automatic, Model F-9 (Westinghouse Electric Corp., 633 Page Blvd., Springfield 2, Mass.) \$60. Revolving-brush, upright. Power input, 400 watts. Weight, 17.4 lb. Dirt-removing abil-



Kenmore Model 116,7161



Wards Supreme Model 74SP-497B

ity, good. Damage to rug with cleaner stationary, very slight. Revolving brush is removed easily for cleaning and adjusted readily to compensate for wear. Belt replacement considered comparatively easy. Headlight replacement considered difficult, required removal of front of motor housing. Motor said to be "lubricated for life." Manual nozzle-height adjustment unnecessary since shape of wheels tends to vary distance from nozzle face to rug with differences in pile-height. Handle usable from horizontal to vertical position, with positive locking in 3 positions; was difficult to adjust to horizontal position. Cord length, 21 ft., adequate. Height from floor to top of motor housing, 7.2 in., average. Cleaner body and motor housing made of plastic; cast metal is to be preferred for long life. Switch, in handle, considered well placed and easily operated. Leakage current, so small as not to be measurable. 2

B. Intermediate

Hoover, Model 115 (The Hoover Co., North Canton, Ohio) \$60; \$50 plus old cleaner. Revolving-brush, upright. Power input, 195 watts. Weight, 14.4 lb. Dirt-removing ability, fair to good. Damage caused to rug, very slight. Revolving brush is removed easily for cleaning and has provision for adjustment to compensate for wear. Belt replacement considered easy. Motor bearing said to require examination and possible lubrication every 2 years. Narrow rear wheels sink into a high-pile rug further than into a low-pile rug and thus provide for a degree of automatic nozzle-height adjustment. Handle usable from horizontal to vertical position, with positive locking in 3 positions; was very difficult to adjust to horizontal position. Cord length, 20.7 ft., adequate. Height from floor to top of motor housing, 6.5 in., slightly below average. Cleaner body made of cast metal; motor housing, plastic. Switch mounted in motor housing, and foot-operated. Leakage current of sample tested, very small, hence there should be no shock hazard. 2

Kenmore, Model 116,7161 (Sears, Roebuck & Co., Chicago) \$63, plus shipping. Revolving-brush, upright. Power input, 455 watts. Weight, 17.7 lb. Dirt-removing ability, fair to good. Rug damage, very slight. Revolving brush had provision for easy adjustment to compensate for brush wear. Belt and headlamp considered difficult to replace, required removal of motor housing. Motor said to be permanently lubricated. Nozzle height, self-adjusting; height was dependent upon kind of floor covering being cleaned. Handle usable from horizontal to vertical position; considered somewhat awkward to put into position; positive locking in 3 positions. Cord length, 20.6 ft., adequate. Cleaner body, cast metal; motor housing, plastic. Height from floor to top of motor housing, 7.5 in. On-off switch not as well positioned as on some other cleaners tested. Leakage current of sample tested, 0.4 ma.; indicative of a small but not dangerous degree of shock hazard. 2

Singer, Model S-2 (Singer Sewing Mfg. Co., Elizabethport, N.J.) \$82. Revolving-brush, upright. Power input, 360 watts, with switch in high-speed position. Weight, 17.9 lb. Dirt-removing ability, fair to good. Rug damage, very slight. Revolving brush accessible for cleaning; it "floats" on rug or floor surface. Belt replacement considered fairly easily accomplished. Head-

lamp replacement considered difficult. Motor bearings said to require examination and possible lubrication by serviceman every 2 years. Manual nozzle-height adjustment. Handle usable from horizontal to vertical position; had 3 positive stopping positions; ease of adjustment, excellent; accessibility of control, excellent. Cord length, 18.8 ft., was contained on spring-loaded reel housed in handle; considered good feature but might be dangerous since when button was depressed to allow reel to wind in cord, the plug-end, in some instances, "whipped," and once during the tests, struck a person in the face with considerable force. Height from floor to top of motor housing, 5.2 in., least of any cleaner tested, good. Cleaner body and motor housing, cast metal, preferred to plastic. Control switch on handle easily operated. Leakage current of sample tested, 0.2 ma.; satisfactory from shock hazard standpoint. 3

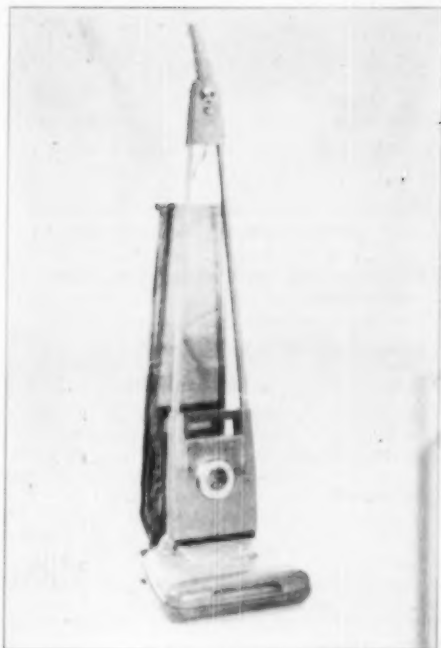
C. Not Recommended

Wards Supreme, Model 74SP-497B (Montgomery Ward & Co., Baltimore) \$65. Revolving-brush, upright. Power input, 425 watts, with switch in high-speed position. Weight, 15.9 lb. Although dirt-removing ability was excellent, cleaner picked up far too much of the rug nap in cleaning operation and would therefore cause unnecessary rug wear (see text). Revolving brush was not difficult to remove for cleaning; had 2-position adjustment to compensate for brush wear. Belt replacement not difficult. Headlamp replacement considered difficult. Motor bearings had sealed lubrication; servicing advised at 3-year periods. Manual adjustment for nozzle height by changing rear wheel axle height. Handle usable from horizontal to vertical position; slight difficulty in adjusting to horizontal position. Cord length, 21.1 ft., adequate. Height from floor to top of motor housing, 6 in., below average, good. Cleaner body, cast aluminum; motor housing, plastic. Switch in handle, conveniently placed. Leakage current on sample tested, 2.0 ma.; indicative of excessive shock hazard. 2

Small Tank Cleaner

B. Intermediate

General Electric Tidy, Model AVT-160 (General Electric Co., Bridgeport 2, Conn.) \$40, including attachments. Small tank cleaner with wand. Power input, 355 watts. Weight, 10.2 lb. (includes nozzle and hose). Cord length, 19.2 ft. Motor bearings grease packed; no oiling required. Cleaner was designed especially for cleaning draperies, curtains, upholstery, and the like, and as such would make a fair auxiliary cleaner in the home. It would not be considered a desirable purchase for use as a substitute for a regular vacuum cleaner, as its dirt-removing ability on a test rug was poor. Anyone interested in purchasing a small hand cleaner, such as one of those which was tested and reported in CR's January 1949 Bulletin, would likely find the *GE Tidy* a somewhat more convenient solution to their problem, but its price is considerably higher. Leakage current of sample tested, 0.2 ma.; satisfactory from shock hazard standpoint. 3



Singer Model S-2

* * *

For the convenience of readers, listings without comment are included on those vacuum cleaners reported on previously which are believed to be still on the market. (For detailed findings, see BULLETINS whose dates are given at end of each listing; BULLETINS available at 30 cents each.)

Cleaners with Revolving Brush

A. Recommended

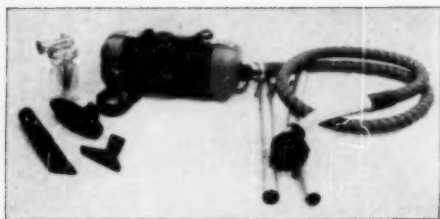
Hoover, Model 28. \$69.95 (attachments extra). (Jan. '48) 2
Eureka, Model D 272 (Eureka Vacuum Cleaner Co., Detroit) \$76. (March '47) 3
Hoover, Model 61. \$89 (attachments extra). (Jan. '48) 3

B. Intermediate

Kirby, Model 505 (The Scott & Fetzer Co., Cleveland) \$89.50. (March '47) 3

C. Not Recommended

Hamilton Beach, Model 14V (Hamilton Beach Co., Racine, Wis.) \$39.75. (March '47) 1



General Electric Tidy Model AVT-160

Royal, Model 189 (P. A. Geier Co., Cleveland) \$59.95.
(March '47) 2

Straight-Suction Cleaners

A. Recommended

Electrolux, Model XXX (Same as Model 30) (Electrolux Corp.) \$69.75, with attachments. (Dec. '48) 2
Air-Way Sanitizer, Model 55A (Air-Way Electric Appliance Corp., Toledo, Ohio) \$87, with attachments. (May '48) 3

Hoover, Model 50. \$79.50, with attachments. (May '48) 3
Lewyt, Model 40 (Lewyt Corp., Brooklyn, N. Y.) \$79.95, with attachments. (May '48) 3

B. Intermediate

Apex, Model 5-140 (The Apex Electrical Mfg. Co., Cleveland) \$59.95. (March '47) 2

C. Not Recommended

Elektrikbroom, Model 1 (The Regina Corp., Rahway, N.J.) \$39.50. (March '47) 1
Eureka, Model W-75. \$66.50. (March '47) 2
Westinghouse, No. T1-47. \$69.95, including attachments. (Dec. '48) 2
Filler Queen, Model 200 (Health-Mor Sanitation System, Inc., Chicago) \$94.50. (March '47) 3
Rexair, Model B (Rexair, Inc., Detroit) \$99.75, including accessories. (Jan. '48) 3
Vactric, Model W-100 (Vactric Ltd., Scotland) \$73.12. (March '47) 3

Editor's Note

A GREAT MANY completed technical reports which CR has had on hand for a fairly long time have not appeared in the BULLETIN because there has not been room for them. This means that some of the information in these reports now has somewhat less value than when it was first compiled, and to be of the most benefit to the consumer, they should be published soon.

It is not practicable to increase the number of pages in the BULLETIN within the present charge for CR's service, for costs increase rapidly with additional paper and printing. We have decided upon another solution that will avoid any undue increase of costs, and at the same time will redound greatly to the advantage of subscribers because it will permit inclusion of more test findings and other available material. This increase in net content of test findings will perhaps involve a disadvantage to some readers; articles will necessarily be shorter and will tend to plunge right into the subject matter with less discussion of background information and other useful material. (Information omitted in this way may not always be that of a general or descriptive nature. For example, the report in the January 1949 BULLETIN on combination steam and dry electric irons included an important and practically helpful discussion, preceding the listings, to explain important limitations and disadvantages in the use of the steam iron and the combination steam-dry iron.)

The inclusion of more reports each month will

necessitate, for the present, omission of a considerable portion or nearly all of the discussions and explanations of test methods. Sometimes there will be little beyond the A, B, and C listings of tested products.

Some consumers may not find the condensed presentations as useful as articles which include discussions of background information and test methods, but we think that on the whole the interests of our readers will be best served, at least at this time, if we prepare reports in as condensed a form as possible so that the greatest practicable number of topics may be included within the compass of each BULLETIN. We are aware that technical experts, engineers, scientists, and some others among our readers will not find the new arrangement so satisfactory; but the average reader will doubtless prefer to receive a maximum of information on product ratings, so long as a choice as to use of space must be made. Long-time readers of CR's material will know from past experience that they can rely on our findings' having been carried out by proper means, without the necessity of knowing a great deal about the detailed tests and observations upon which they are based.

We shall plan to follow the new policy outlined in this brief note at least in the next few issues, and may continue to do so indefinitely, depending upon the amount of new material based on test data received in relation to space available for printing reports for CR's readers.

Buick 43 Special and Studebaker Champion and Commander

Editor's Note: Ratings of the Buick Special and Studebaker Champion are based on studies of cars purchased by CR for this purpose in addition to reports from consultants in the field based on their work and tests with cars obtained on a loan from dealers. There had not been sufficient time to make road tests on the Studebaker Commander at the time this Bulletin went to press.

1950 Buick

The new 1950 Buick Series 40 Special differs in numerous respects from previous models, but, as is true of most cars nowadays, changes are for the most part on the body rather than the engine or chassis. This is the first car to use the redesigned GMC (Fisher) "B" body. The Special is about 11 inches wider at the rear seat than the "C" body used on the Buick Super. The body roof rails are designed to permit the use of narrower pillars and a larger rear window than in previous models without reducing the structural strength of the top portion of the body. Body features include push-button door handles, counter-balanced and self-locking rear deck lid and use of rust preventives where serious rusting of the body is likely to occur. The front bumper and grille are combined into a unit which consists of nine vertical bar brackets of sufficient thickness to resist considerable shock; two additional bumper-bar brackets have built-in recessed parking lamps, which are fitted with plastic lenses. The bumper design appears to be a very desirable means of eliminating the ordinary separate grille, which often is expensively damaged even in a very slight collision.

Two engines are supplied for Series 40 cars, one for use with the regular transmission, the other for cars sold with Dynaflo transmission. These have the same bore, stroke, and piston displacement, and their general design is the same, but they differ in two respects: the engine for cars with the regular transmission is not equipped with hydraulic valve lifters, while the one for use with the Dynaflo is so equipped, as is the practice with other Buicks than the "40." The engine for use with the regular transmission has a compression ratio of 6.3 to 1 and develops 110 horsepower. This engine can be operated satisfactorily with "regular-grade" gasoline. The Dynaflo engine has a compression ratio of 6.9 to 1 and develops 120 horsepower. Premium-grade fuel is necessary for non-knocking performance with this engine.

The fact that a more powerful engine is supplied for cars equipped with Dynaflo transmissions is indicative of the need for more power to offset the loss of power (lower efficiency) of this transmission. Although the higher compression engine should operate more efficiently than the regular engine, it is not to be expected that this would result in any net improvement in economy, in view of the added expense of using premium-grade fuel. Radiators in cars equipped with Dynaflo are larger than those with standard transmissions, which reflects the greater power requirement with use of the Dynaflo transmission.

Each of the engines used on the Buick Series 40 is now equipped with a combined intake silencer and oil bath air cleaner. Other engine details remain practically the same as formerly. Mention, however, may be made of the elimination of the instrument-panel hood lock. The hood is now opened by means of a "key" supplied with the car. The adoption of such an inconvenient method of



1950 Buick Special 43

opening the hood would seem an unnecessary economy on the manufacturer's part, as the hood can be opened from outside the car with a screw driver; thus, there is no protection against theft and tampering provided by the release and lock normally controlled from the instrument panel position. This method could prove to be very dangerous, for, if a screw driver is used to lock the hood, it will be difficult to determine when the hood is properly locked; if it is not, the hood may be blown upward by the wind if one or both sides are left unlocked (the entire hood may be lifted off the car when both sides are unlocked). Such an incident could result in a very dangerous situation for the driver, with possibility of collision or other grave accident.

B (tentative)

1950 Buick Special, Series 43. \$1925 f.o.b.; \$2007 delivered N.Y.C. (Extras: Dynaflo drive, \$169; radio and heater, \$154.) Engine: 8 cylinder, valve-in-head, 3-3/32 in. bore x 4-1/8 in. stroke; 248.1 cu. in. displacement; 110 hp. at 3600 rpm. (120 hp. when equipped with Dynaflo transmission); taxable hp., 30.63; compression ratio, 6.3 to 1 (with Dynaflo, 6.9 to 1; requires the use of premium fuel). Engine: oil capacity, 6 1/2 qt.; cooling water, 13 qt., with heater, 14 1/4 qt. (with Dynaflo, 14 qt., and heater, 15 1/4 qt.); gas tank, 19 gal. Gear ratio, 4.1 to 1 (with Dynaflo, 3.9 to 1). Battery, 15-plate, 100-amp.-hr., judged inadequate. Wheelbase, 121 1/2 in.; over-all length, 204 in.; width, 79 1/2 in. (10 in. wider than Studebaker Commander and too wide for easy access to many garages); height, 61 3/4 in. Tire size, 7.60 x 15 (adequate). Brake area, 161 1/2 sq. in.; brake factor, 36.4. Step-on emergency brake. Minimum road clearance 6.8 in. Seat widths: front, 63 in.; rear, 63 in. Actual useful seating width (decreased by inward slope of car body): front, 57 1/4 in.; rear, 54 in. Headroom: front, 35 1/2 in.; rear, 34 1/2 in. (insufficient). High hump over transmission in floor makes for uncomfortable riding position for passenger sitting in center of front seat. Performance factor, 24.7 (with 120 hp. engine, 27). Reported gasoline mileage: in city driving, 14 to 15 m.p.g. (with Dynaflo, 13 to 14 m.p.g.); in country driving, 16 to 17 m.p.g. (with Dynaflo, 15 to 16 m.p.g.). Girder "X" type frame. Coil spring suspension used on all 4 wheels. Slope of rear window is such as to retain snow and ice, very undesirable. Plastic parking and tail lamp covers undesirable (poor weathering properties). Accessibility of spare tire, poor. Trunk space rather small and poorly finished inside with paint only and lacking a mat and adequate flat floor space for storage of luggage. Fenders are bolted on (desirable). Shipping weight, 3700 lb. With Dynaflo, tentative rating is B—.

1950 Studebaker Cars

Aside from general restyling of the front end of the car, with a few rear-end style modifications, and one major technical change, the 1950 Studebaker cars retain pretty much the design of the 1949 models.

Despite its up-to-dateness and the care exercised in establishing new features from a style standpoint, the new body is open to a number of criticisms. The front overhang of the new "nose" has been increased more than 5 inches compared with the overhang of the 1949 car, with a corresponding increase in over-all length; for instance, from 192 inches to 197 1/4 inches on the *Champion* model. Another objection is that the front bumper is not now as far in front of the forward end of the hood and lamps as formerly. While the lamps and nose are well above the usual contact height for bumpers, little space remains for deflection of the bumper before contact with the lamps and nose would be made if the car strikes a flat surface, such as a wall in a parking lot or garage. The bumper guards serve to help this condition somewhat, but they



1950 Studebaker Champion

will not always make contact. The ends of the bumpers also are too close for safety to the lower front edges of the fenders, although this condition is no worse than with some other current car models. While the front fenders are removable and replaceable, any extensive repairs to them would probably be expensive due to their contours and general form.

The lowering of the front end of the hood has improved the driver's view of the road close to the forward end of the car. A still closer view is obtained when looking between the nose and fenders.

The principal mechanical change is the adoption of coil front springs, eliminating the transverse leaf spring design formerly used. At the same time, the springs have been made "softer" to improve riding comfort. Due to the backward canting of the front suspension links, the front wheels now move backward as well as upward when hitting a bump or other surface raised above normal road level. The increase in possible spring flexure has necessitated changes in the fenders to permit greater wheel movement. The rear leaf-type springs also have been made more flexible than in 1949 models.

Engine horsepower has been increased by increasing the compression ratio on both *Champion* and *Commander* engines. The former optional high ratio (7 to 1) has now become the standard (regular ratio was 6.5 to 1), while a new, still higher 7.5 to 1 ratio is available for cars used in high altitudes. Through this change in the standard ratio, the horsepower of the *Champion* has been increased from 80 at 4000 rpm. to 85 at the same engine speed, while the *Commander's* horsepower is increased slightly from 100 at 3400 rpm. to 102 at 3200 rpm. The increased power of the *Commander* engine, while not large, occurs at a lower engine speed and should improve acceleration with the same total car weight (weight of car with passengers, etc.).

On *Champion* cars, the front shock absorbers are now mounted inside the coil springs (airplane-type shocks). Formerly the shock absorbers were of the arm type, a design which is continued in the *Commander*. Due to their method of mounting in the *Champion*, the shock absorbers may be somewhat

easier to install and service than the arm type. (Arm-type bolts are hard to reach in the *Commander*.)

The following two cars are considered somewhat overpriced when purchased outright. When a turn-in is involved, however, the trade-in allowances given by Studebaker dealers may offset to a degree their prices, which are higher than for comparable cars.

A—(tentative)

Studebaker Champion DeLuxe. \$1689 f.o.b.; \$1767 delivered N.Y.C. (Extras: radio, \$85; heater, \$61; overdrive, \$92.) Engine: 6 cylinder, L head, 3-in. bore x 4-in. stroke; 169.6 cu. in. displacement; 85 hp. at 4000 rpm.; taxable hp., 21.6; compression ratio, 7.0 to 1 (7.5 to 1 optional). Engine oil capacity, 5 qt.; cooling water, 10 qt.; gas tank, 18 gal. Gear ratio, 4.1 to 1 (with overdrive: 4.56 to 1; 3.19 to 1 overall). Battery, 15-plate, 100-amp.-hr. (adequate). Wheelbase, 113 in.; over-all length, 197½ in.; width, 70 in.; height, 61 in. Tire size, 6.40 x 15 (slightly overloaded). Accessibility of spare tire, excellent. Trunk space, adequate. Seat widths: front, 59 in.; rear, 58 in. Actual usable seating width: front, 54 in.; rear, 51½ in. Headroom, front and rear, 36 in., adequate. High hump over drive shaft and transmission in floor makes for uncomfortable riding position for passenger sitting in center of front seat. Brake area, 148 sq. in.; brake factor, 42. Road clearance: front, 8½ in.; rear, 8 in. Brake cable and gas pipe exposed at low clearance. Performance factor, 24.3. Reported gasoline mileage: in city driving, 21 m.p.g.; in country driving, 23 m.p.g.; with overdrive, 24 m.p.g. and 26 m.p.g., respectively. Rear doors

hinged at back (undesirable from safety standpoint). Fenders bolted on and flared to facilitate wheel removal. Vision over hood, good, but continued low location of rear vision mirror results in driver's vision being blocked by passengers in rear and center of front seat. This cannot be moved and secured firmly in conventional position, as holes at top of strip to which bracket is fastened are not at same spacing as those in the bracket. Riding comfort judged good. The bumper jack is user, as a back support for the spare wheel. The jack can be removed simply by removing the nut that holds the spare in place. Judged a desirable arrangement since the jack is held securely and cannot rattle. Trunk space adequate. Shipping weight, 2745 lb.

Studebaker Commander DeLuxe. \$2019 f.o.b.; \$2110 delivered N.Y.C. (Extras: radio, \$85; heater, \$61; overdrive, \$98.) Engine: 6 cylinder, L head, 3-5/16-in. bore x 4¾-in. stroke; 245.6 cu. in. displacement; 102 hp. at 3200 rpm.; taxable hp., 26.3; compression ratio, 7.0 to 1 (7.5 to 1 optional). Engine oil capacity, 6 qt.; cooling water, 13½ qt.; gas tank, 18 gal. Gear ratio, 4.09 to 1 (with overdrive: 4.55 to 1; 3.18 to 1 overall). Battery, 15-plate, 100-amp.-hr. Brake area, 178 sq. in.; brake factor, 44. Road clearance: front, 8½ in.; rear, 8½ in. Brake cable and gas pipe exposed at low clearance. Wheelbase, 120 in.; over-all length, 208 in.; width, 70 in.; height, 62 in. Tire size, 7.60 x 15 (adequate). Performance factor, 25.5. Reported gasoline mileage: in city driving, 19 m.p.g.; in country driving, 23 m.p.g.; with overdrive, 22.5 m.p.g. and 25 m.p.g., respectively. Foamed rubber cushions standard equipment. Rear doors hinged at back (undesirable). Shipping weight, 3255 lb. For comments not covered above, see *Studebaker Champion*.

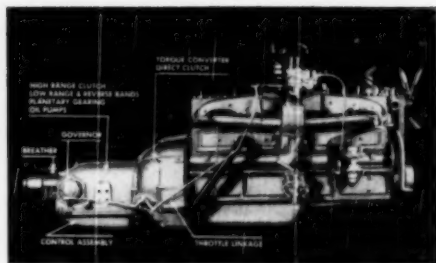
Overcharges on Prescriptions

CONSUMERS sometimes complain that pharmacists charge more for a packaged proprietary drug ordered on a prescription than for the same product ordered without a prescription, as in an ordinary over-the-counter purchase. (Reference is made only to proprietary medicines that are already packaged, not to mixtures which must be made up by the pharmacist.) One of our subscribers said that he was charged \$1.25 for a 1-oz. bottle of *Burroughs-Wellcome Isotonic Ephedrine Inhalant* on a prescription, whereas he had previously paid 75 cents for the same product when buying without a prescription.

Pharmacists customarily charge proportionately more for a given preparation, if they are obliged to dispense part of a bottle and affix their own label giving the serial number of the prescription and the directions of the prescribing physician. The higher charges reflect extra costs of dispensing and record-keeping when a physician's prescription is involved. There is also an inventory problem,

since the druggist who must open an original bottle and dispense part of it prefers to recoup the major part of his investment with the first sale, on the theory that the prescription may not be repeated. He is obliged to carry numerous duplicates of preparations which differ only in their brand names, and tries to prevent the accumulation of a large inventory of drugs that may be substantially valueless in a year or two, if they happen, as commonly occurs, not to "take hold."

The extension of this practice of charging more for prescriptions to transactions which consist solely of a turnover of a full unit or package of the product is surely open to serious objection. On the other hand, consumers are cautioned against attempting to read prescriptions and ordering the prescribed drugs verbally; in some cases a serious error or injury may result when the layman attempts to interpret information that calls for the special training and experience of a graduate in pharmacy.



Packard Ultramatic Drive

The New Packard Ultramatic Transmission and Chrysler Semi-Automatic Transmission

Packard Ultramatic

The new *Packard Ultramatic* transmission represents a further development of the torque-converter¹ type of automatic transmission. It is therefore similar in many respects to the *Buick Dynaflo* transmission, but possesses a number of desirable features not offered by the latter.

Like the *Dynaflo* transmission the *Ultramatic* consists of a torque converter, a set of planetary gears for providing a low operating range and reverse, and a lock-up parking unit, along with the necessary hydraulic pumps and other mechanisms necessary for controlling its action. Unlike the *Dynaflo* it is equipped also with a direct-drive clutch. In the *Dynaflo* the drive is always through the torque converter, whereas in the *Packard Ultramatic*, the direct-drive clutch provides a "solid" connection through the transmission to the propeller shaft under certain operating conditions. The result is an increase in transmission operating efficiency and decrease in fuel consumption, as compared with the *Dynaflo*; this can be an important point wherever fuel costs represent a considerable percentage of a car's total operating cost and in times or places of fuel scarcity.

As with the *Dynaflo*, the *Ultramatic* trans-

mission is equipped with an operating control lever having five positions: "P" (Parking), "N" (Neutral), "H" (High or normal driving range), "L" (Low or emergency driving range) and "R" (Reverse). The low range is intended only for emergency use and unusually fast acceleration from a standstill, and for this range an oil cooler is provided. The direct-drive clutch can be operated in either of the driving ranges, so that the efficiency of the transmission is increased in either range.

Operation of the *Packard Ultramatic* is as follows: Under ordinary part-throttle starting and driving conditions the direct drive is engaged automatically at about 15 miles per hour car speed. However, the driver can "override" the engagement of the clutch merely by holding the throttle open farther when starting up, or by pushing it past the full-open position at any time until a car speed of 55 m.p.h. (in the "H" range) is reached. At that speed no increased rate of acceleration can be obtained by the additional "gear reduction" afforded by the action of the torque converter; thus the transmission control then overrides the driver and the car remains in direct drive above that speed. When the car is slowed down, the direct drive is automatically disengaged at 13 to 14 m.p.h. The driver thus has a selective control of the car's rate of acceleration in either the low or high driving ranges, plus the fuel economy of direct drive at all speeds above 15 m.p.h. if desired. The action provided by the direct-drive clutch is thus somewhat similar to that obtained in a car equipped with a conventional transmission and also having an over-drive unit.

Another important advantage obtained in the *Ultramatic* is that the direct drive can, if necessary,

¹A torque converter differs from the fluid drive in that a fluid drive (technically termed a hydraulic coupling), cannot transmit more torque (turning force) at the output or propeller shaft than is applied at the input shaft or engine crankshaft. With a torque converter — which is the mechanical equivalent of an electrical transformer — the torque or turning force at the output shaft may be more than double that at the input shaft (around 2.4 to 1 in the *Packard Ultramatic*).

Thus the torque converter performs the same function as a set of transmission gears by its ability to multiply the driving force. The fluid drive itself cannot do this as it serves only as a fluid clutch or coupling which can slip in the various ways required to start and accelerate the car smoothly.

be engaged when it is necessary to start the engine by pushing the car. For this purpose the direct drive is engaged rather than having the converter or fluid coupling always in the drive line as with the *Dynaflow*, *Hydramatic*, or the *Chrysler-Dodge Fluid Drive*.

A third feature offered by the *Ultramatic* is that the car can readily be "rocked" or maneuvered backward and forward with small, quick movements for getting out of deep snow, soft sand, or mud. The control lever may be moved rapidly from the low to the reverse ("L" to "R") position and back again, just as low and reverse are used for the purpose when the car has a conventional transmission.

For simplicity, the operations of the torque converter and direct drive-clutch for the various control lever settings of the *Packard Ultramatic* are given in the accompanying table.

Control Lever Setting	Operation of Torque Converter	Operation of Direct-Drive Clutch
"P" Parking	Not operating	Not operating
"N" Neutral	Idling	In released position
"H" High	Operates to accelerate car up to a speed of 55 m.p.h. or at will of driver to any speed between 15 to 55 m.p.h.	Engages at speeds between 15 and 55 m.p.h. at will of driver. Engages automatically above 55 m.p.h. Disengages automatically at 13 to 14 m.p.h.
"L" Low	Provides power through low-range gears	Engages at speeds above 15 m.p.h. Disengages automatically at 13 to 14 m.p.h.
"R" Reverse	Provides power through reverse gears	In released position

While both the *Ultramatic* and *Dynaflow* are equipped with oil coolers, the amount of cooling effect required in the *Ultramatic* is not as great as in the *Dynaflow*, since the converter, which requires cooling, is not operating continuously. The cooling requirement, of course, implies a loss of power and thus a reduction in efficiency (increased use of gasoline per mile). The cooler is considered necessary only for rather long-continued operation when the control lever is in the low-speed position.

The only electrically-controlled unit in the *Ultramatic* transmission is an interlocking switch to pre-

vent the engine from being started except when the control lever is in either the parking or neutral position. Direct braking by the engine is available, when needed, for descending steep hills. With the *Dynaflow*, this effect is reduced because the converter remains in the drive line.

Although the operating principles involved in the *Packard Ultramatic* transmission can be considered in advance in the design of transmissions of automatic type, it may be expected that some difficulties will be likely to develop under actual service conditions, and the inevitable "bugs" will probably have to be eliminated as with other automatic transmissions.

Chrysler Semi-Automatic

The *Chrysler* semi-automatic transmission (termed *Prestomatic* transmission on *Chrysler* cars, *Gyromatic* on *Dodge*) consists primarily of a fluid coupling and a 4-speed gearbox largely of conventional (constant mesh gear) design. Between the fluid coupling (termed *gyrol Fluid Drive* by *Chrysler Corp.*) and the transmission is a conventional clutch actuated by the usual clutch pedal. Shifting of the gears in the transmission is accomplished hydraulically within certain limits discussed later.

Two driving ranges are provided, a low-speed range for pulling power wherein the first- and second-speed transmission gears are used, and a high-speed range for normal driving in which the third and fourth gears in the transmission are used. Shifting between low and second in the low-speed range and between third and high in the high-speed range is done semi-automatically, that is, the shift may be delayed or made at the will of the driver by his lifting his foot momentarily from the accelerator pedal at any desired speed above about 14 miles per hour. The transmission may be shifted down (to third from high or cruising gear, or from second to first, depending upon which speed range is being used) by depressing the accelerator pedal to the floor at any speed. When the car speed drops below about 11 miles per hour (7 m.p.h. when in low range), the shift downward is made automatically. Thus the transmission is in either first or third gear each time the car is started depending upon which range the driver has selected.

For normal driving, the high-speed range only is used. Sufficient slip occurs with the fluid drive coupling to provide a smooth start in third gear. The low range (first and second gears) will be required only exceptionally, as when the car is being started up a steep grade, or is negotiating deep sand or mud.

When starting the car the clutch is depressed and the control lever moved from neutral to either driving range position as desired by the driver (or into reverse if the car is to be backed). The clutch

is then engaged. Once the clutch is engaged, it need not be used again until the engine is stopped or a change is made from high to low range or vice versa.

While the fluid coupling is always in the drive line between engine and rear axle, the availability of the conventional clutch makes it possible for the driver to make short, quick movements of the car forward or backward, as is often necessary "in a tight spot," more readily than is possible with some of the automatic transmissions.

The flexibility and smoothness of the fluid drive coupling in picking up the load of starting the car, make it possible for Chrysler to utilize a somewhat higher (lower numerical) rear axle ratio than in some other cars with semi-automatic or fully-automatic transmissions (3.73 to 1 standard, 3.54 to 1 optional). The use of either of these ratios tends also to offset the losses inherent in the fluid coupling in both third and high gears (high driving range), so that the over-all fuel consumption per mile with the Chrysler transmission should not be much greater than when a conventional clutch and transmission are used with the same axle ratio.

The installed cost to the owner of the Chrysler semi-automatic transmission is about \$45 less than for the Hydramatic transmission on Pontiac and Oldsmobile, \$60 less than for Cadillac, and about \$55 less than for the Dynaflo transmission on Buick.

While the Chrysler transmission utilizes pumps and hydraulic cylinders for gear shifting, along with a governor control and other mechanisms, it is less complex than the Dynaflo or Packard Ultra-matic transmission. The fluid coupling is a sealed assembly which is subject ordinarily only to leakage of the fluid through replaceable oil seals. The transmission is therefore likely to be relatively free from mechanical trouble, and when this does occur, any necessary repairs should be less costly than for the other transmissions.

The first gear (low range) is freewheeling, but ample braking power from the engine can be obtained when needed in descending steep grades by using second gear.

Since the car is started normally in third gear, and the rear axle ratio is relatively high (low numerically), the rate of acceleration obtainable is usually not as fast as with the Hydramatic, which uses four gears when starting, or the Dynaflo, which uses a torque converter in combination when desired with two driving ranges. However, for the driver who does not require the utmost in acceleration, and at the same time is interested in not using the excessive amount of gasoline which goes with use of some torque converters, the Chrysler transmission should prove relatively satisfactory. (Better fuel economy may ordinarily be had with the 3.54 to 1 axle ratio, than with the 3.73 to 1.)

Corrections and Emendations to Consumers' Research Bulletins

Men's Undershirts
Page 16, Col. 1
Jan. '49 Bulletin
In the fourth paragraph, the Federal Specification JJ-U-513 applies to flat-knit undershirts and not to rib-knit undershirts, the type included in the test.

Page 17, Col. 1
In the listing of the *Pilgrim* undershirt, Sears-Roebuck's Cat. No. 16-5134, line 2, change "Low-count" to "Medium-count." Delete the third and fourth lines of the listing, referring to number of wales and courses in relation to Federal Specifications.

Adhesives
Page 23, Col. 2
Aug. '49 Bulletin
The National Archives has advised us that their Bulletin No. 5, "The Repair and Preservation of Records," mentioned in the last paragraph of the page, is no longer available; it is now out of print. The National Archives hopes to publish a revision of the Bulletin next summer; requests for copies of the Bulletin will be retained on file, to be filled in case the revision becomes available.

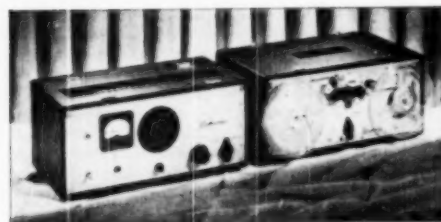
Oil Burner Heads
Page 18, Col. 2
Aug. '49 Bulletin
The address of the Richfield Manufacturing Corp. (manufacturer of the *Richfield Flame Control Turbulator Head Oil Burner*) has been changed to 41-43 Lawton St., New Rochelle, N.Y.

Automobiles
Page 8, Col. 1
July '49 Bulletin
It was incorrectly reported, beginning at line 2, that foamed-rubber cushions are standard equipment in the *Plymouth P-18*. Such cushions are included in a "group" of "extras" or special equipment, for which the total added price is about \$37.

Off the Editor's Chest
Page 20, Col. 1
Sept. '49 Bulletin
The date of the issue of *Hospital Management* from which Mr. Kenneth C. Crain's article was reprinted was given incorrectly. The correct date is January 1949.



Webster Ekatape Model 101



Magnecorder Model PT6-PT6-A



Wilcox-Gay Model 8U12

Seven Tape Recorders and a Wire Recorder

ADVANTAGES of sound recording on tape, as compared with the much more widely used disk-recording on shellac composition or plastic, include simplicity of operation, adjustments not critical, low maintenance cost, decreased bulk of equipment used, and, in refined tape equipment, superior quality of reproduction. The principal users of tape recorders at present are mainly those who wish to record their own material from voice, orchestra, or radio, since there is not available, as yet, a commercial supply of tape-recorded entertainment, corresponding to phonograph records.

Misleading advertising widely disseminated has led many potential users of tape recorders in the home to believe that \$100 or \$200 or a little more will purchase a recording instrument capable of delivering high-quality sound reproduction from tape costing about \$4 per half-hour recording. This result is not attainable now or in the foreseeable future. The machines reported on in the listings delivered

performance which varied from poor (sound output about as good as a plastic-cased table-model ac-dc radio) for the low-priced units to superior (so good that no one could reliably detect the recorded performance from reproduction "off the line" at the studio). But equipment capable of giving the superior performance was priced at upwards of \$1500, and even that high price did not include associated and necessary power amplifier and speaker equipment.

As a general rule, the best performance of which available commercial tape recorders sold for home use are capable is comparable to that to be had from a commercial radio-phonograph at about the same price. In the top-grade or professional equipment, the tape medium gives better (more faithful, noise-free) performance than any other recording medium, and if first cost can be disregarded, at less cost in use, and with less bulk and with much greater operating convenience (in making the recording).

At the present time, machines which record and play back at tape speeds of 15 inches per second or more are the only ones which can be regarded as capable of high-quality reproduction, and such recorders are all very expensive.

No doubt the most serious limitation on tape-recorder performance is imposed by slow tape speed. Tape recording engineers agree generally that the uppermost limit on frequency response in kilocycles is about equal to the tape speed in inches per second. Nevertheless, very few $7\frac{1}{2}$ -in.-per-second machines offer a frequency response reaching to 7.5 kilocycles per second (corresponding to the musical range which does not include the harmonics that determine timbre of a number of important musical instruments). Slow tape speed severely restricts signal-to-noise ratio (a vital factor in determining tonal quality) and increases greatly the likelihood of flutter and "wow" in reproduction.

Method of Test

Recorders examined in this study were submitted first to a listening test in their "as delivered" form; second, to a listening test with their output connected to a high-quality playback apparatus consisting of a *Brook 12A3* amplifier and *Altec 604B* speaker in a large baffle (instead of to the amplifier and speaker system included in the equipment itself). Microphone tests were made on each, using an experienced announcer reading a standard text. In instances in which the listening test gave hope of a satisfactory return for the investment incurred, the recorder in question was submitted to laboratory tests for frequency range and distortion. The frequency range figures as given are approximate, but reflect the extremes which are likely to be found.

A. Recommended

Ampex, Model 200 (Ampex Electric Co., Howard Ave., at Laurel, San Carlos, Calif.) \$3825. This machine was examined not with the idea that consumers would buy it but as a standard of attainable excellence to which to compare other tape machines. Its very high cost would be justified only where performance of the highest possible quality and reliability are of paramount interest. Tape speed, 15 or 30 in. per second. Rewind speed, as high as 600 in. per second; rewinds over an hour's playing of 15-in.-per-second tape in 2 minutes. Frequency response curve, flat, within 1 decibel from 30 to 15,000 cycles. Distortion, 1% or below over full range. Noise level, very low (more than 60 db. down at the 1% distortion output level). A new model selling for approximately \$1500 and having tape speeds of $7\frac{1}{2}$ or 15 in. per second considerably exceeds National Association of Broadcasters' standards. The tape transport mechanism is substantially the same as that on the *Model 200*, but the controls are less elegant and cost less to make. **AA3**

Magne recorder (Magne record, Inc., 360 N. Michigan Ave.,

Chicago 1) \$268 for recording chassis and erase oscillator only; \$795 in rack-mounting assembly complete including 3-channel microphone mixers and preamps. Portable *Model PT6JA* with a single microphone input and a 10-watt amplifier (of only medium quality), \$500. This was the lowest cost recorder offered with an optional 15-in.-per-second tape speed. It is a professional model designed for recording studios and radio stations. Rewind time, less than 2 minutes for $\frac{1}{2}$ hour of 15-in. tape. In tests, deficiencies were noticed in the highs in both music and speech; using the $7\frac{1}{2}$ -in.-per-second speed, the equipment was not judged to be satisfactory for wide-range high-quality recording but it was comparable to commercial vinylite records of restricted high-frequency range; using the 15-in.-per-second tape speed, results were considerably better, and a smooth wide-frequency range was indicated. At this speed it was considered adequate for permanent recording of valued music from high-quality playback and for close study of speech. At the $7\frac{1}{2}$ -in.-per-second tape speed, frequency and distortion curves were within 2 db. from 60 to 6000 cycles. Distortion at 400 cycles was 2.3%. At the 15-in.-per-second tape speed, frequency range was ± 2 db. from 60 to 12,000 cycles. Distortion at 400 cycles, about 2%. Noise level, 49 db. below the peak recording level. The nearly \$500 difference in price between the "basic chassis" with erase oscillator and the unit complete and ready to feed a sound system seems excessive. Where a good sound engineer or technician can be found who can assemble the associated equalizer and amplifier systems, the owner of Magne record equipment will have a tape mechanism that will justify its use with fine broadcast microphones and wide-range playback equipment comparable to the *Brook* and *Altec* systems with which it was tested. **3**

B. Intermediate

Lear Dynaport Wirecorder (Lear Inc., 110 Ionia Ave., N.W., Grand Rapids 2, Mich.) A wire recorder. \$425 including radio, amplifier, tuner, and phonograph pickup. Wire speed, 24 in. per second. Frequency characteristic curve, within 3 db. over range of 70 to 9000 cycles. Distortion, approximately 3%. Signal to noise ratio, 32 db. below recommended recording level (about the same as shellac record). The *Wirecorder* has a simple automatic stop which acts at any time the wire is not in contact with the reading head. While fouling of the wire can occur due to breakage, the switches are so interlocked that the machine must be stopped between operations; this reduces the chance of breaking the wire. **3**

Webster Ekotape, Model 101 (Webster Electric Co., Racine, Wis.) \$395. In the microphone-listening tests, the *Ekotape* was preferred to the *ACA* and *Brush* machines. Speech was brighter and more readily understood; when played through a wide-range system, deficiencies were apparent; music lacked bass compared to the *ACA*, but the difference was not great, especially when played through the *Brook-Altec* system. Highs were lacking on high-quality playback, but less deficient than on the lower-priced machines. Frequency characteristic curve, within 3 db. from 90 to 6000 cycles. Distortion, 3.1%. Noise, 42 db. below recommended peak recording level (about the same as vinyl 78 rpm. records). Potentially, this machine gave results which were com-

parable to those from a commercial AM radio-phonograph of the console type at about the same price. 3

* * *

The following machines, while rated *B, Intermediate*, were not considered to offer performance equivalent to that from the *Webster Ekotape*, Model 101.

ACA Magnetape, Model 810-B (Amplifier Corp. of America, 398 Broadway, New York 13) \$285. The "Twin-Trax" feature of this machine made it possible to record twice as much on one tape as on any other 7½ in.-per-second-speed machine; this is a feature which is not applicable to high-quality equipment because the "cross-talk" between channels so closely spaced is necessarily high. In listening tests, sound was much like that from a good a-c table-model radio using a comparable oval speaker. Noise was present, and it was of a rather unpleasant quality. "Wow" and flutter were detectable even when the machine was performing at its best. The unit's principal faults were mechanical. Damage to tape could easily occur in normal operation. Rewind speed was slow. Control of the tape position relative to the head was not sufficiently good, and the sample tested had to be constantly reset. Inside chassis and electrical parts were well assembled. Frequency range, within 3 db, from 80 to 4000 cycles. Mean distortion, 3.6%. Noise level, 32 db. below recommended recording level (not very good — about the same as a good shellac record). Machine will serve a purpose where standards of audio quality afforded by an a-c table-model radio are acceptable, but it is not considered suited to music lovers' permanent recording of valued music. 2

Brush Soundmirror, Model BK 411 (Brush Development Co., 3405 Perkins Ave., Cleveland 14) \$200. A newer model of the older *Model BK 401* listed later. In the listen-

ing tests, the announcer's voice sounded very much the same as on a typical ac-dc table-model radio. With a wide-range reproducing system, the voice was muffled, and simple expressions were indistinct; there was no significant improvement over the sound as heard through the self-contained speaker. Flutter was worse than on the other tape machines tested, and "wow" was at least noticeable. Frequency range was within 3 db. from 110 to 4000 cycles. Mean distortion, 4.6%. Noise level, approximately 30 db. below peak recording level. Machine was well constructed and rugged; compact and simple to operate. Should give satisfaction to a user whose needs do not call for good fidelity. Background noise appeared to be less than that of the *ACA* or *Webster* machines, largely because of restricted frequency range. 2

Brush Soundmirror, Model BK 401 (Brush Development Co.) An older model available from some dealers' stocks or as a used unit (in 1947 sold at \$230). Previously listed in *CR's Bulletin* for December 1947, but included in test for comparison purposes. Mechanical system considered more stable than that of the new *Model BK 411*. Neither wide-frequency nor dynamic range are considered possible with this machine, but if its greater bulk and inconvenience are of minor importance to the user, it would seem to be a more satisfactory and durable machine than the *Model BK 411*.

Wilcox-Gay, Model 8U12 (Wilcox-Gay Corp., 600 W. Seminary St., Charlotte, Mich.) \$187. This machine is a compact portable unit for tape or disk recording. Performance even more limited than *Brush Soundmirror*, Model BK 411, as it uses a smaller speaker and housing. General comments on the *Brush* apply. Quality comparable to that of an inexpensive ac-dc plastic-cabinet table-model radio. 2

Preservation of Wood for Fence Posts

BEFORE the blight killed practically all chestnut trees in Connecticut, untreated chestnut was used for posts and poles because of its resistance to decay. Untreated wood of many other local varieties, however, when used in contact with the soil, became unserviceable in from two to ten years, and the Connecticut Agricultural Experiment Station, in order to find a possible substitute for chestnut posts, conducted experiments on various methods of wood preservation. It was found that round posts of oak and pine (with sapwood intact) absorb creosote readily when treated in open tanks, and that if they are given a full-length treatment, they will afford 15 or more years of service. This treatment is less successful with ash, aspen, birch, elm, hickory, maple, and tulip, because the distribution of creosote within the wood is rather poor. Squared or split

posts are not recommended for open tank treatment. It should be remembered that sapwood absorbs preservative more easily than heartwood, and the penetration of the preservative will thus be deeper in a round post than in a squared post which is all heartwood. In another method, called the sap-stream process, the sap in the conducting tissues of freshly-cut wood is replaced with a solution of a salt, such as zinc chloride, which poisons the organisms that cause decay. Pressure methods of application give about the same distribution of preservative as do gravity methods, but in much shorter time. The sap-stream process works well with birch and maple; it also works well but more slowly with conifers having thick sapwood. Tests on poles treated by the sap-stream method indicate a probable service life of ten years or more.

AUTOMATICALLY-FIRED WARM-AIR HEATING UNITS

Editor's Note: As explained on page 8, a great deal of useful information assembled by CR in making this study has had to be omitted, because of space limitations. The information presented, therefore consists mainly of listings of various brands of oil-fired warm-air furnaces. A second article on this subject to be presented in a forthcoming BULLETIN will deal with hand-fired gravity-flow and forced-circulation warm-air furnaces. Prices given are only approximate and do not include freight, handling, or installation. On some makes prices were not available at the time of going to press.

Forced-Circulation Units with Pressure-Type Oil Burners

With one exception (*Toridheet*), the units in the following listings use conventional gun-type burners. Unless otherwise noted, the burners are completely enclosed within the jacket of the heater. The fans, motors, and filters are enclosed, in all cases.

A. Recommended

The following units have stainless steel combustion chambers, unless otherwise noted.

- Bryant**, Model 140-308 (Bryant Heater Co., 17825 St. Clair Ave., Cleveland 10) \$420. Casing extra. 106,000 Btu at bonnet¹. 1 gal./hr. nozzle. Heat exchanger tubes in blower section preheat return air. Pressure atomizing gun-type burner.
- Century**, Models RB-105 to RB-380 (Century Engineering Corp., Cedar Rapids, Iowa) \$452 to \$1305. 105,000 to 380,000 Btu at bonnet. 1 to 3½ gal. hr. Built around Century oil burner. Automatic humidifier.
- Dowagiac** (Dowagiac Steel Furnace Co., Dowagiac, Mich.) Model MM100, \$541; 100,000 Btu (registers)²; 1.2 gal./hr. Model MM150, \$599; 150,000 Btu (registers); 1.65 gal. hr. Model MM200, \$661; 200,000 Btu (registers); 2 gal. hr. Model HB-80 Hi-boy (upright) type, \$496; 80,000 Btu at registers; 1 gal. hr.; occupies space 26½ x 38 in.; refractory combustion chamber.
- Iron Fireman** (Iron Fireman Mfg. Co., Cleveland, Ohio, and Portland, Oreg.) Model FOV-130, \$677; 111,000 Btu at registers. Model FOV-180, \$725; 153,000 Btu (registers). Model FOV-270, \$839; 230,000 Btu (registers). Refractory combustion chamber, tubular heat exchanger.
- Mor-Sun** (Morrison Steel Products, Inc., 601 Amherst St., Buffalo 7) Model T-6 O, \$467; 112,000 Btu (bonnet);

1 gal./hr. Model T-8 O, \$513; 140,000 Btu (bonnet); 1.25 gal. hr. Model T-9 O, \$527; 151,000 Btu (bonnet); 1.35 gal. hr. Pressed steel furnace. Burners specially designed for these units and not available in conversion models.

Niagara (Niagara Furnace Division, The Forest City Foundries Co., 2500 W. 27 St., Cleveland 13) Model 30-90-AC, \$800; 90,000 Btu (registers); 1 gal./hr. Model 30-135-AC, \$518; 135,000 Btu (registers); 1½ gal./hr. Precast ceramic combustion chamber.

Oneida Royal (Hart & Crouse Corp., Oneida Heater Co., Inc., 109 N. Warner St., Oneida, N.Y.) Model 2500, \$400; 86,500 Btu (at registers); 1 gal. hr. Model 3000, \$473; 115,000 Btu (registers); 1.3 gal. hr. Model 4000, \$520; 150,000 Btu (registers); 1.6 gal. hr. Refractory combustion chamber.

Petro Winter Air Conditioners, Model K-140 (Petroleum Heat & Power Co., Stamford, Conn.) \$800. 120,000 Btu output at registers. 1.35 gal./hr. Refractory combustion chamber; steel furnace with Petro pressure-type burner.

Superfex, Model 4100 (Perfection Stove Co., 7609 Platt Ave., Cleveland 4) \$800. 105,000 Btu output at bonnet. 1 gal./hr. Includes 2-speed blower control for high and medium outputs (desirable).

Toridheet (Torridheet Div., Cleveland Steel Products Corp., Cleveland 2) Model OGA-90, \$411; 90,000 Btu at the registers; 1 gal./hr. Model OGA-130, \$491; 130,000 Btu at the registers; 1½ gal./hr. (150,000 and 175,000 Btu models also available at \$587 and \$603.) Refractory combustion chambers.

B. Intermediate

The following have boiler steel combustion chambers which are considered very much less durable than the chambers made of refractory material or stainless steel of the models previously rated.

Conco (Conco Engineering Works, Div. of H.D. Conkey & Co., 1940 Thomas St., Mendota, Ill.) Model M-2, \$800; 135,000 Btu at bonnet. Model M-3, \$800; 185,000 Btu at bonnet.

¹Heater output at the bonnet is the gross output at the top of the furnace. As some heat is lost in the ducts, these figures should be reduced by from 10 to 25% (depending on the size and type of the house and ducts) to give heat outputs available to the rooms.

²Heat output at registers is heat that will be available for heating the rooms of the house.

Kalamazoo, Model OF-75 (*Kalamazoo Stove & Furnace Co.*, Kalamazoo, Mich.) \$457. 107,000 Btu at registers. 1.2 gal./hr.

National Mayflower, Series O, Model DOLB-2100 (*Excelsior Stove & Furnace Co.*, Quincy, Ill.) \$390. 100,000 Btu at bonnet. Wayne pressure-type OX oil burner rated at 0.8 to 2 gal./hr.; when equipped with nozzle smaller than 1 gal./hr., rating is *C. Not Recommended*.

Toridheet (*Toridheet Div.*, Cleveland Steel Products Corp.) Model ORA-60, \$387; 60,000 Btu at registers. Model ORA-90, \$480; 90,000 Btu at registers. Vertical rotary burners.

C. Not Recommended

CR rates all pressure-type oil burners *C. Not Recommended* when equipped with nozzles for less than 1 gal./hr. because they are very susceptible to a change in character of performance by wear, and the nozzles clog up easily even with the smallest particles of foreign material. Included in this class are:

Certified, Model 151 CAO-A2F (*Certified Furnace Co.*, Div. of Stainless & Steel Products Co., 1000 Berry Ave., St. Paul 4) \$397. 90,000 Btu at bonnet. 0.75 gal./hr. Stainless steel combustion chamber; includes economizer section for better efficiency.

Mor-Sun (*Morrison Steel Products, Inc.*) Model U-4-O,

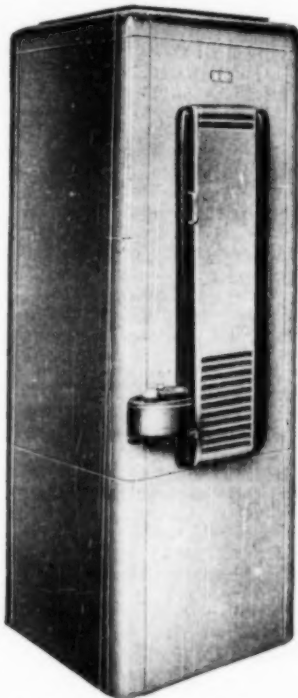
\$355; 67,000 Btu (bonnet); 0.6 gal./hr. Model T-4-O, \$413; 89,000 Btu (bonnet); 0.8 gal./hr.

Petro Winter Air Conditioner (*Petroleum Heat & Power Co.*) \$453, f.o.b. Stamford. 75,000 Btu at registers. 0.75-gal./hr. nozzle.

Forced-Circulation Units with Vaporizing- or Pot-Type Oil Burners

Except for the type of burners, these units are identical in functional parts with the pressure-burner group just described.

Vaporizing burners are considerably more critical as to the oil used and to factors of adjustment and maintenance than the pressure type. One important requisite with the pot burner is that it be installed and kept absolutely level, as otherwise there is increased formation of soot. The burner should be cleaned at the start of the season and at regular intervals thereafter. Only the best grades of oil should be used, preferably No. 1 or, in some cases, when specified by the manufacturer for the particular burner, kerosene; because of this limitation, use of pot-type burners should normally be restricted to sizes below the minimum effective range (1 gal.) of the pressure burner.



Duo-Therm forced-circulation furnace, "Hi-boy" type.



Cutaway view of Mor-Sun gas-fired furnace.

A. Recommended

Duo-Therm (Duo-Therm Div., Motor Wheel Corp., Lansing 3, Mich.) Vaporizing oil-fired models are available in both gravity and forced-air circulation with manual (not recommended) and automatic control. *Model 340 IIB*, \$330 with automatic controls including room thermostat, forced circulation, filters, etc.; 75,000 Btu at bonnet. *Model 340 Deluxe*, \$330; similar to 340 IIB but with fan at rear of heater instead of underneath; 78,000 Btu. *Model 350 Deluxe*, \$400, including automatic controls and humidifier; 108,000 Btu at bonnet.

Mor-Sun (Morrison Steel Products, Inc., 601 Amherst St., Buffalo 7) *Model U-4-OV*, \$280; 75,000 Btu (bonnet); 0.65 gal./hr. *Model T-4-OV*, \$347; 93,000 Btu (bonnet); 0.79 gal./hr.

Superfex (Perfection Stove Co., 7609 Platt Ave., Cleveland 4) *Model 100AE*, \$900; 85,000 Btu (at registers); 0.85 gal./hr. *Model 200AE*, \$900; 120,000 Btu (at registers); 1.2 gal./hr. *Model 300AE*, \$900; 150,000 Btu (at registers); 1.5 gal./hr. Equipped with a 3-stage burner and 2-speed blowers, providing flexible output.

Gas-Fired Furnaces with Forced-Air Circulation

The listings are for gas-fired warm-air furnaces of the forced-circulation type. In ordering such furnaces, it is important to specify the type of gas for which they are to be used, that is, manufactured, natural, or liquefied petroleum (bottled propane, butane, etc.). When not ordered from the local gas company or from someone familiar with local conditions, the purchaser should ascertain the Btu value of the gas from the local utility and include this in his specifications.

While most manufacturers now offer models for several gases, different burners are sometimes required, often involving a slight difference in the cost of the unit.

As liquefied petroleum gas is a high-priced fuel as compared to most house-heating fuels, its use should be restricted to relatively small spaces, occasional use, or relatively mild climates, unless, of course, the high extra cost is thoroughly understood, and the advantages considered to outweigh the disadvantages in the given case.

Wherever gas of any type is used for heating, the house should be well insulated to reduce heat requirements to a minimum. (In installing any insulation, storm windows, or weatherstripping, do not lose sight of the fact that any gas burner requires large amounts of air for proper combustion. Many asphyxiations have resulted from the extinguishment of a gas flame after it has burned up all of the oxygen available in the room.) A gas heater with automatic controls should be bought only if approved by the American Gas Association.

A. Recommended

Arrow (Dowagiac Steel Furnace Co., Dowagiac, Mich.) *Model AG-54*, \$312; 54,000 Btu (registers). *Model AG-*

75, \$324; 75,000 Btu (registers). *Model AG-90*, \$333; 90,000 Btu (registers). *Model AG-115*, \$440; 115,000 Btu (registers). *Model AG-144*, \$497; 144,000 Btu (registers). *Model AG-180*, \$645; 180,000 Btu (registers).

Bryant Gas Fired Warm-Air Furnaces (Bryant Heater Co., 17825 St. Clair Ave., Cleveland 10) Manufacturer supplies both gravity and forced-circulation type heaters. Forced-circulation models: *B-1-88 Series*, \$330 to \$764; 48,000 to 200,000 Btu (at bonnet). *V-S-304 Series*, \$277 to \$382; 36,000 to 116,000 Btu (at bonnet).

Certified Counterflow 151-CAG-202 (Certified Furnace Co., Div. of Stainless & Steel Products Co., 1000 Berry Ave., St. Paul 4) \$340. 80,000 Btu at bonnet.

Iron Fireman, Series FGF (Iron Fireman Mfg. Co., Cleveland, Ohio, and Portland, Oreg.) *Model FGF-85*, \$394; 58,000 Btu at registers. *Model FGF-120*, \$416; 82,000 Btu at registers. *Model FGF-160*, \$442; 109,000 Btu at registers.

Kalamazoo (Kalamazoo Stove & Furnace Co., Kalamazoo, Mich.) *Model 1075*, \$282; 60,000 Btu output. *Model 2109*, \$314; 80,000 Btu output. *Model 3125*, \$344; 100,000 Btu output. *Model 4150*, \$465; 120,000 Btu output. *Model 5200*, \$495; 160,000 Btu output. All ratings are as of the bonnets.

Mor-Sun (Morrison Steel Products, Inc., 601 Amherst St., Buffalo 7) *Models U-4-G and T-4-G*, \$247 to \$393. 80,000 to 104,000 Btu output at bonnets.

National Mayflow, Model DL-2100 (Excelsior Stove & Mfg. Co., Quincy, Ill.) \$273. 80,000 Btu output at bonnet. Multiple jet burner.

Niagara, Series 20 (The Forest City Foundries Co., 2500 W. 27 St., Cleveland 13) *Model 20-3AC*, \$430; 58,000 Btu at registers. *Model 20-3XAC*, \$451; 72,000 Btu at registers. *Model 20-4AC*, \$496; 83,000 Btu at registers. *Model 20-5AC*, \$553; 108,000 Btu at registers. *Model 20-7AC*, \$699; 129,000 Btu at registers. Prices include desirable 3-speed drive; prices for single-speed drive, approximately \$35 to \$40 less.

Oneida Royal (Hart & Crouse Corp., Oneida Heater Co., Inc., 109 N. Warner St., Oneida, N. Y.) *Model 90*, \$306; 61,000 Btu at registers. *Model 130*, \$373; 88,500 Btu at registers.

Superfex, Model 62 (Perfection Stove Co., 7609 Platt Ave., Cleveland 4) \$900. 80,000 Btu at bonnet. Three-speed burner and 2-speed blower. Automatic humidifier. *Model 62LP* available for liquefied petroleum gas.

Toridheat (Toridheat Div., Cleveland Steel Products Corp., Cleveland 2) *Model GFA-70*, \$268; 48,000 Btu at registers. *Model GFA-105*, \$293; 71,000 Btu at registers. *Model GFA-140*, \$347; 92,000 Btu at registers. Multi-speed blower available (desirable) at \$50 extra.

Utility, Models 75M to 150M (Utility Appliance Corp., 4851 S. Alameda St., Los Angeles 11) \$339 to \$439. 60,000 to 120,000 Btu output. Manufacturer's list prices are f.o.b. Los Angeles and include Minneapolis-Honeywell thermostats. Prices are for natural gas and liquefied petroleum (bottled) gas. Models for manufactured gas, available at \$6 to \$11 higher.

Radiant Wall Panel Gas Heaters, Gravity Circulation

While this type of built-in wall unit is popular in California and climates where only a little heat is needed, mainly to "remove the chill" from a room,

it must be remembered that the distribution of any quantity of heat to a point more than a few feet from the hot panel will be at the expense of overheating the space near by.

Thus units of this type are *A. Recommended* only for occasional or light use in small rooms where even distribution of heat is not necessary. (In effect, the radiant heaters give an effect similar to a fireplace, though considerably higher in efficiency of heating.)

Regardless of the following listings, all such gas heating units are definitely rated *C. Not Recommended* unless adequately vented to the outside, because of the definite hazard of carbon monoxide poisoning otherwise involved.

A. Recommended

Bryant Radiant-Panel Heater, Series 401 (Bryant Heater Co., 17825 St. Clair Ave., Cleveland 10) *Model 15-401*, \$106; 9750 Btu output. *Model 20-401*, \$112; 13,000 Btu output. *Model 25-401*, \$107; 17,500 Btu output. Wide variety of control sets are available; prices are for units equipped with most complete sets of controls available, including room thermostats, gas shut-off valves, etc. Heaters with manual controls are available as low as \$62, \$65, and \$72 for the three sizes.

Utility Wall Heaters (Utility Appliance Corp., 4851 S. Alameda St., Los Angeles 11) Single and dual types. Dual unit heats two rooms, one on each side of partition in which heater is mounted. Single, 18,900 Btu output; dual, 35,000 Btu output; \$152.50 to \$183, without thermostatic controls. Manual control permits

setting for low, medium, and high heat. While listed as *A. Recommended*, it is believed that the dual unit, which would have to be installed in an inside partition, will be difficult to vent to outside air; as has been noted, without such vent the rating is *C. Not Recommended*.

Forced-Circulation Stoker-Fired Heaters

Stokers, of course, require removal of ashes either from cans or a pit. On the other hand, when well designed they have the advantages of a high degree of safety from fire and explosion hazard, plus the use of the most economical fuel available to most localities.

B. Intermediate

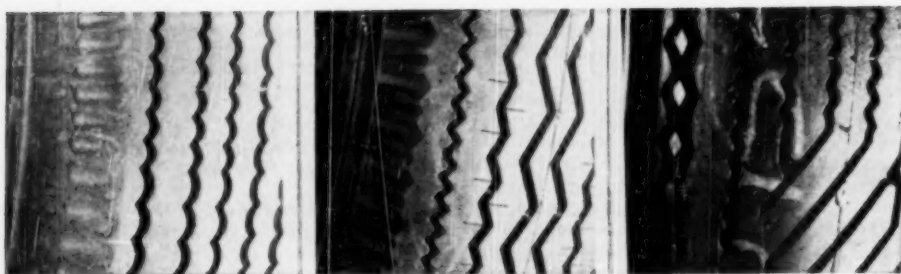
Iron Fireman Deluxe Furnace-Burner Units (Iron Fireman Mfg. Co., Cleveland, Ohio, and Portland, Ore.) Anthracite and bituminous coal models available with capacities of 111,000 Btu, 153,000 Btu, and 230,000 Btu (at registers), \$823 to \$1126, according to size and model. Both bituminous and anthracite stokers are available in two types: (a) delivering ash to cans which must then be removed from the cellar; and (b) spillover or clinker types for anthracite and bituminous, respectively. In the spillover, a pit is used to accumulate the ash for periodic removal (allow 12 cu. ft. of ash per ton of coal burned); in the clinker type (used with bituminous coal) the formed clinker must be removed periodically from the furnace with tongs.

Brief Items of General Interest

DIAPER RASH IN INFANTS can be cured by administering small daily doses of methionine, an amino acid, reports Drug Trade News. The discovery was made by Dr. Louis S. Goldstein, of New York City in the course of treating a child suffering from beriberi. The administration of doses of thiamine for the deficiency disease was also effective in curing diaper dermatitis. By experimentation, Dr. Goldstein found that methionine was just as effective and that the necessary dose was much smaller.

BUILDING YOUR OWN HOME is reported to be a fast growing movement. Amateurs who have acquired some skill from their woodworking basement hobby shops are finding that by working week ends and holidays they can save 20 to 40 percent of the cost of a new home by doing the job themselves. Most of the amateur-built homes run to four or five rooms with bath and are of frame construction because wood is easiest for the amateur to work with. Biggest headaches for the home builder are plumbing, wiring, and heating.

GEIGER COUNTERS AND RADIO-ACTIVE ISOTOPES of cobalt are being experimented with in the hope of developing a technique for measuring the mass of snow in a particular area in order to forecast the probable water supply for a particular region. According to the description given in Chemical and Engineering News, the radio-active metal is placed in a light aluminum box on the ground. After the snow falls, the amount will be determined by taking a reading on a Geiger counter mounted on a tripod above the snow. The scientists can then readily determine how much snow is present—not merely the depth of the snow layer, which does not tell the whole story as to the available water supply.



Left to right: Goodrich, Allstate, General.

Automobile Tires

TIRES now made contain synthetic rubber, of which from 23 to 68 percent is required by federal regulations governing production of tires for passenger cars. Since the war, development of synthetic rubber has continued, and several types are now available. The most notable advance has been the introduction of "cold rubber," which is not basically different from the previous GR-S rubber, except in its processing; the polymerization reaction has been conducted at a lower temperature for a longer time. "Cold rubber" is said to have about 15 to 30 percent more abrasion resistance than previous GR-S rubber, but it is said also to have certain undesirable characteristics which prevent its use in the bodies of tires, e.g., low resistance to cracking, and to "cut growth." It is also poor in resistance to skidding.

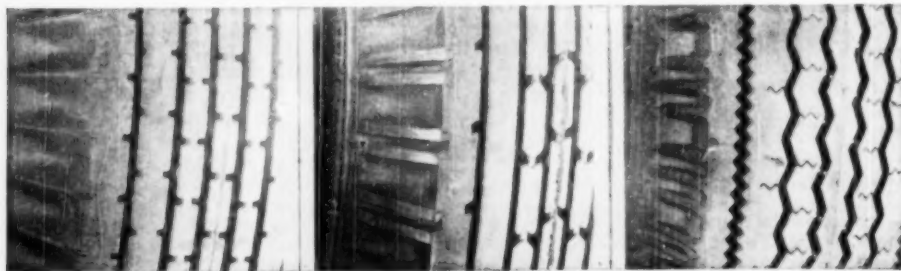
Since not enough "cold rubber" is available to provide tread stock for all the tires marketed, the industry has been introducing it gradually; it has been available mostly through the smaller manufacturers.

The following report presents the results of tests made on nine brands of "extra low pressure" 4-

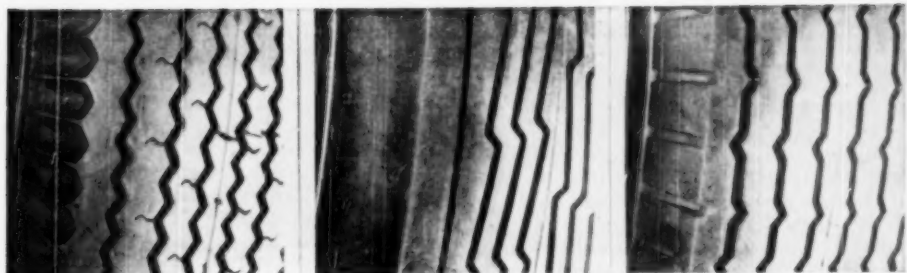
ply 6.70 x 15 automobile tires. The ratings are based entirely on laboratory tests which, in addition to examination for quality of workmanship, design, and quality of material, included the following: Tread abrasion resistance¹; flex cracking and cut-growth; structure, and resistance to ply separation (adhesion measurements); cords per inch, their make-up, breaking strength; thread count, etc., of flippers and chafers.

It should be pointed out that variations in tire manufacturing may easily produce a lot or a run, of perhaps several hundred tires, whose qualities may vary widely from the general average of production. It is, therefore, possible for consumers to purchase particular tires whose characteristics may differ from the samples tested by CR. But we believe that the following ratings should be a reliable guide, in the great majority of cases, to the brands and lines of tires tested. As there have been price changes since the tires were pur-

¹Carried out by an improved method, involving extraction for 96 hours with ethanol-toluene azeotrope to remove depolymerized rubber, in accordance with the findings of Canadian investigators, Griffith, Storey, Barkley, McGilvray; reported in *Analytical Chemistry*, September 1948, Vol. 20, No. 9, p. 837-47.



Left to right: U.S. Royal, Riverside, Goodyear.



Left to right: Firestone, Gates, Lee.

chased for test, the prices given are those of November 23, 1949.

A. Recommended

Sears Allstate Cushion (Sears-Roebuck's Cat. No. 95-01100) \$12.95 including tax, plus freight. Quality of carcass, as measured by resistance to flex cracking and cut growth, average. No chafers were used. Above average in resistance to abrasive wear of tread stock. **1**

Goodrich Silvertown (B. F. Goodrich Co., 448 S. Main St., Akron, Ohio) \$17.50 plus \$1.21 tax. Quality of carcass, best of all samples tested; resistance to flex cracking and cut growth, very good. Bead construction, about average. Above average in resistance to wear of tread material. **2**

General (General Tire & Rubber Co., Akron 9, Ohio) \$19.45 plus \$1.21 tax. A rayon cord tire. Quality of carcass, good; fair in resistance to cut growth and moderately resistant to flex cracking. Bead construction, best of all samples tested. Tread stock wear resistance, above average. **3**

B. Intermediate

Ward's Riverside Air Cushion (Montgomery Ward's Cat. No. 64-41117M) \$12.95 including tax, plus freight. Below average in general carcass and tread properties. Bead construction, about average. **1**

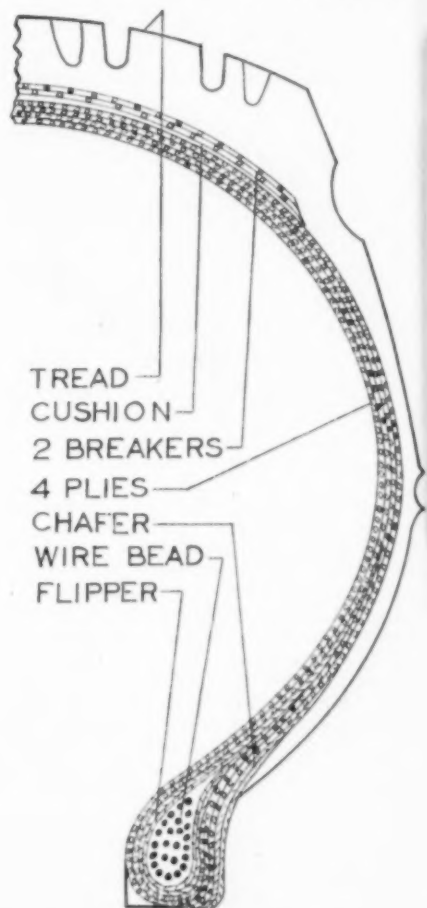
Firestone Super Balloon (Firestone Tire & Rubber Co., Akron, Ohio) \$16.90 plus \$1.21 tax. Quality of bead, very good. Carcass of below average quality; resistance to wear of tread stock below average. **2**

Goodyear Super Cushion (Goodyear Tire & Rubber Co., Akron 17, Ohio) \$17.50 plus \$1.21 tax. Carcass above average; resistance to cut growth only fair. Quality of bead, good. Ranked poorest of all tires tested in resistance to wear of tread stock; but was not considered sufficiently poor in this respect to warrant a C-Not-Recommended rating. **2**

Lee Super DeLuxe (Lee Tire & Rubber Co., Conshohocken, Pa.) \$17.50 plus \$1.21 tax. Quality of carcass, below average. Sidewall rubber, only fair in resistance to flex cracking and cut growth. Bead construction, slightly below average. Resistance to tread stock wear, best of all samples tested. **2**

Gates Air-Float Silent Safety (Gates Rubber Co., 1001 S. Broadway, Denver, Colo.) \$24.50 plus \$1.21 tax. Quality of carcass very good; resistance to flex cracking, best of all samples tested; resistance to cut growth, about average. Bead construction, about average. Resistance to tread stock wear, below average. **3**

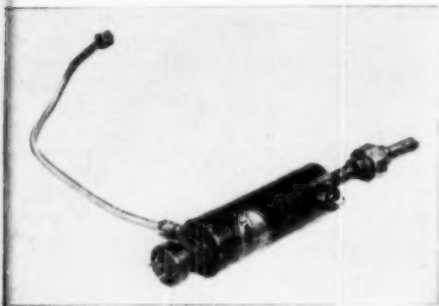
U. S. Royal Air Ride (U. S. Rubber Co., 1232 Ave. of the Americas, New York 20) \$18.40 plus \$1.21 tax. A rayon cord tire. Quality of carcass and resistance to tread stock wear somewhat below average quality. **3**



Engine Preheaters

COLD-WEATHER STARTING is difficult because at low temperatures oil and grease are stiff, the charge of gasoline vapors in the cylinders is difficult to ignite, and the flow of current from the battery to operate the starter is very greatly reduced below that available at normal temperatures. As to the latter point, the loss of cranking power from a fully-charged battery amounts to as much as 60 percent at 0°F (compared to 100% cranking power at ordinary summer temperature).

The viscosity of lubricating oil rises sharply when the temperature drops. At 0°F some oils become very thick and partially lose their ability to spread a protective film over metallic surfaces. More important from the standpoint of the immediately



Sure Heat Motor Water Heater

practical problems is the fact that very cold oil is so stiff or viscous that it opposes the action of the oil pump, and the motion of the pistons in the cylinders. The current needed will be considerably more than under normal conditions because of the added load due to the stiffness of the oil, yet, in addition, the battery itself will be far less able to provide the necessary heavy current for starting, because of the low temperature.

Some have tried to overcome the problem by working to improve the vaporization of the gasoline, and have produced gasoline heaters to be installed between the carburetor and the intake manifold. These do not meet the problem, as the devices would take care of only a minor part of the difficulty of cold-weather starting. A most desirable solution to obtain easy starting of a car that is not kept in a heated garage is to preheat the engine or the jacket water surrounding the cyl-



Freeman Handbolt Heater

inders. Various heaters offered to deal with the difficulties of winter starting may heat the water, the oil, or the cylinder block. The amount of heat required to heat the entire mass of the engine and its surrounding water is very considerable, and apparently the water in the cooling system itself does not circulate sufficiently well to transmit heat in large enough amounts to the metal, for the water near a heater may boil while the cylinder block as a whole remains cold. Moreover, the radiator system may contain alcohol in the winter, and an undue proportion of this will tend to be boiled out when the heat is unevenly applied, as by a single-point heating unit.

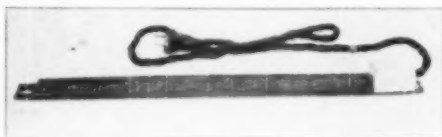
A heater designed to warm the engine by direct contact with its metal surface also has a serious limitation since the heating contact is inefficient, and one side of the heater will deliver a good deal of heat to the air.

One heater (the *Flash*) consisted of a unit to be introduced into the oil pan through the oil gauge stick opening. This warmed the oil directly and so reduced the oil-pumping load on the starter and permitted easier distribution of the lubricant.

The basis of CR's recommendations is comparative ease of installation, the actual increase of temperature or maintenance of temperature depending upon design, and shock hazard. Except as noted, all the heaters were fairly easy to install.

B. Intermediate

Flash Motor Heater (Phillips Mfg. Co., Inc., 2816 Aldrich Ave. South, Minneapolis 8) \$4.95. 135 watts. Heating element to be inserted in oil. To be connected while engine is still warm and left connected overnight. Leak-



Ideal Electric Auto Engine Block Heater



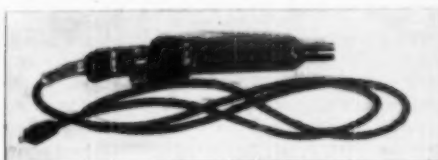
Flash Motor Heater

age current on sample tested, very small, hence there should not be significant shock hazard. 1

C. Not Recommended

Ideal Electric Auto Engine Block Heater (Ideal Specialty Co., 23080 Meadowlark Ave., R. 2, Box 45, Royal Oak, Mich.) \$5.95. 520 watts. Extension cord and mounting brackets provided. Heavy metal bar with Chromalox internal heating element about 18 in. long, to heat engine block by surface contact. Very well insulated. Efficiency low, and produced only a slight temperature rise. Leakage current on sample tested, very small, hence there should not be significant shock hazard. 1

Chicago Motor Heater (Chicago Mfg. Co., 411 N. Trumbull,



Chicago Motor Heater

Chicago) \$10.50. 460 watts. To be connected in hot-water line of car heater. Most inefficient unit tested. Current leakage, .8 ma. (some shock hazard). 3

Freeman Headbolt Heater (Five Star Mfg. Co., East Grand Forks, Minn.) \$10.25. 790 watts. Difficult to install. To be inserted in engine block in place of one of the head bolts, and advertised to produce sufficient heat for starting in one-half hour. Poor construction caused this unit to present considerable shock hazard. 3

Sure Heat Motor Water Heater (Johanson Motor Heater Co., 817 W. Webster St., Chicago 14) \$12.50. 165 watts. To be left connected overnight. Difficult to install. Produced only a slight temperature rise. Sturdy construction. Current leakage, negligible (minimum shock hazard). 3

Off the Editor's Chest

(Continued from page 2)

bypass their product in favor of oil as a less expensive fuel. These are only a few of the more recent cases in the public press.

The importance of the part to be played by the consumer in keeping the U.S. economy on an even keel is enhanced by the fact that the recent wartime demands on American industrial enterprise and upon farmers was a challenge so successfully met that our national capacity to produce has now been expanded tremendously. Since other nations once again are making a comeback and are now taking care of their people's needs to a growing extent, the United States is faced with a serious problem of finding markets for food and other consumers' goods. In a word, customers are again people to be cultivated.

Bigger and better salesmanship is advocated by several business counsellors as one solution. In order to sell all the things that our system of mass production is capable of turning out at top capacity, it is suggested that "distribution must step on the promotion gas" and that what is needed "is to make more people want more things." Another suggests that the important task confronting industry today is not only to restrain its salesmen on how to sell in the buyers' market now prevailing, but to educate management to gear its manufacturing policies to putting out standard products at prices that consumers are willing to pay, rather than to make fancy high-priced chrome-trimmed models that do not move so rapidly out of the retailer's store.

The same idea is succinctly phrased by the journal *Product Engineering* in an editorial entitled, "No Sale for Gingerbread," in which the editor wisely pointed out that the time is past when the buyer of an automobile can be made to pay for a radio, heater, power-operated window lifts, cigarette lighter, clock, fancy trim, bright chrome plate, rainbow colored horn buttons, with his new car whether he wants them or not. Today's wary purchaser is looking for "products that are... without parasitical gingerbread" and the editor further predicts that the business recession will continue until the buying public is offered products that are functionally sound and look the part, that possess design features that contribute to ease of use, higher efficiency of operation and greater durability, on which prices are cut to the bone, and from which all nonessentials are eliminated that serve no purpose except to give salesmen something to talk about.

To all of which, we say "amen." The consumer is, we believe, coming of age. Even *Fortune Magazine*, that impressive \$12.50-a-year journal for businessmen, admits that keeping-up-with-the-Joneses, buying for prestige sake, is old hat.

The problem of abundant production has been solved. The problem of mass distribution has not, and serving the consumer's interests soundly and well is the key to a solution.

We venture to predict that those who are trying to keep production machinery at high-level operation by subsidizing farmers, organized labor, and other producing units at the consumer-taxpayers' expense will sooner or later be discovered to be working for the wrong people. We advise the con-

sumer to keep his purchases of all but essentials to a reasonable minimum, until prices come down. In some cases he is obliged to, where taxes and his family's necessary living expenses take all his available income. He should keep in mind the fact that, in normal times, he is the one who can, if he chooses, call the tune and that those who are given to expressing concern for the "general welfare" must implement their protestations of good intentions with concrete *cost-saving action in his be-*

half. Since all citizens are consumers, to proceed in behalf of any other group is to act in behalf of powerful and often greedy *minority pressure groups.* The consumer is not organized, and he has no official spokesman or representative. Perhaps he doesn't need one. He can, if sufficiently impressed with the need to defend his interests, just sit back and wait until it is more generally discovered that he is the person who makes the wheels go 'round and pays for all their motion.

A Combination Steam and Dry Iron

ANY COMBINATION steam iron is bulky and clumsy to use as a dry iron, when compared with a conventional iron. Since in doing the ordinary household laundry the chief use for the iron would be as a dry iron, there are definite disadvantages for most housewives in buying the combination appliance. Tests have shown that a dry iron gives quicker and better ironing results on nylon, rayon, silk, and cotton fabrics than a steam iron. Some housewives, nevertheless, prefer to buy a combination iron because they do not already have a fully satisfactory electric iron of the standard type, and because they have sufficient need for a steam iron for pressing woollens and steaming pile fabrics to make effective use of the combination appliance.

Distilled water should be used in a steam iron, especially in hard-water areas, because the minerals in the water will leave deposits and, where the water is very hard, it will not be long before the steam vents will be clogged by scale-forming minerals. If distilled water is not easily available, rain water can be collected. Another convenient source of mineral-free water is the drip which comes from the freezing compartment of the refrigerator when it is defrosted.

C. Not Recommended

Steam-O-Matic R-500 (Steam-O-Matic Div., Rival Mfg. Co., Westport & B'way, Kansas City 2, Mo.) \$19.95. Weight, full, 4½ lb. Necessary preheating period, 4 to 5 minutes at high setting (relatively long). Rated 1000 watts (measured 1100 at 120 volts). Water capacity,



Steam-O-Matic Irons

about 1 cup. Stainless steel boiler. Aluminum soleplate. (Most of the new irons use an aluminum soleplate which has the advantage of quick heating but is more susceptible to marring and scratching than chrome-plated steel.) Duration of steaming at highest setting, 34 minutes (a little longer than average). The low setting was not effective as it did not produce steam, but temperature of sample at middle position of "Medium" setting was such that rayon (but not nylon) fabrics could be ironed. Steam issued in a steady flow with little or no drip. Successfully withstood the standard 900-volt breakdown test, and sample tested had leakage current (a measure of potential shock hazard) within accepted limits. Iron was light in weight for its type but bulky and not easy to handle. Heat-control lever was easily operated and clearly marked; it became uncomfortably hot when iron was at high setting. When iron was used as a dry iron, normally satisfactory ironing results were obtained; when it was used as a steam iron, only a worsted fabric was well ironed. Iron was easy to fill, but it was difficult to get all the water out. The emptying process recommended by the manufacturer, in which the iron was tipped back and steam and hot water allowed to spurt out, could involve a serious hazard, since the user or anyone near the iron might easily be sprayed with boiling hot water if the operation were carelessly done or done by someone not properly instructed. The *Steam-O-Matic* had to be emptied in order to change from steam to dry ironing, and this is a disadvantage not possessed by some combination irons. 3

* * *

The following are abbreviated listings of combination steam irons previously tested by CR and reported in the January 1949 BULLETIN.

A. Recommended

General Electric, No. 119F30; *Monitor*, Model STE1-L.

B. Intermediate

General Mills Steam Ironing Attachment for the Tru-Heat GM IB Iron.

C. Not Recommended

Omar Fabric-Master, Model 200-A.

Automatic Washing Machines

BECAUSE of the widespread popularity of automatic washing machines, indicated by the very large number of inquiries CR receives from subscribers on the subject, CR is testing the new models of these machines as fast as the work can be done, and will report on the new machines as soon as the tests have been completed. The performance of each machine in cleansing of soiled test samples is compared with that of a standard or "comparator" washer. CR test findings will not include any judgment of the probable durability of the machines based on endurance tests, because such tests, to be reliable, require a long time and, if carried on for a sufficient period, would delay the issuance of the other findings to such an extent that their value to subscribers would be greatly diminished, if indeed they had any value at all considering the rapid development and frequent changes in this field. Each machine will have completed at least 20 cycles satisfactorily, but this is admittedly too few to give any very useful opinion of its probable durability; ratings should therefore be considered tentative.

It is important in buying any washer to check carefully whether the make selected will perform satisfactorily under the conditions in the home in



Hotpoint Cat. No. 20LC-2

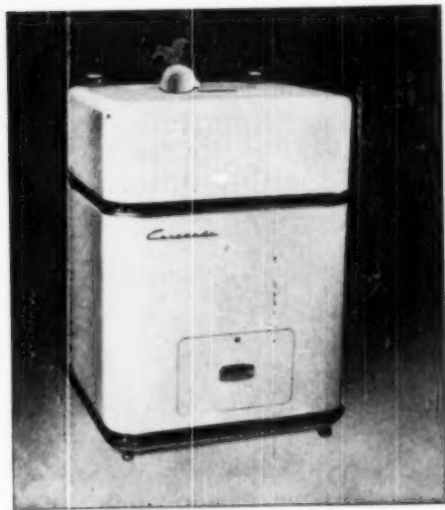
which it is to be used. *An adequate supply of hot water of at least 140°F should be available.* A machine which uses all or nearly all of the available hot water for the washing of a single load of clothes will seriously inconvenience the housewife who has several loads to wash and other use for hot water during the day.

Machines which feature using the wash water several times require either double laundry tubs or a single laundry tub (or other receptacle) plus an additional connection to the drain for emptying the rinse water.

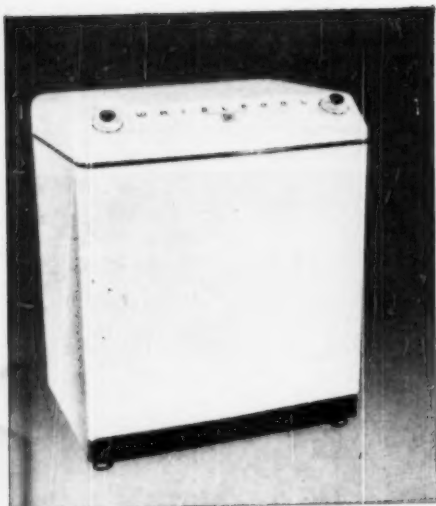
In homes where the flow and pressure of water are low, automatic washers which control the amount of water used by a timing device are not satisfactory, as sufficient water does not flow into the tub in the predetermined time to wash or to rinse the clothes satisfactorily.

Soap or Synthetic Detergents?

Several of the automatic washing machine manufacturers are now recommending the use of synthetic detergents, instead of soap, with their machines. Apex claim best washing results will be obtained with their washer by use of *All or Spin*. Maytag recommends the use of synthetic detergents exclusively. This maker gives three reasons for not recommending soap.



Coronado Type G 149CP



Whirlpool Model 81561

1. "Synthetic detergents can be used safely in the hardest water without the addition of water softeners."

2. "Soap has a tendency to react with the hardness of water to form curds which cling to fabrics giving the appearance of spots."

3. "The same curds cling to metal surfaces and there are metal surfaces not readily accessible to cleaning."

CR has found, in tests so far completed on automatic washing machines, that the synthetic detergents do not do as good a job of washing standard soil cloth test samples as ordinary soap. In the *Maytag* automatic machine, for example, with an 8-pound load of clothes the washing effectiveness was considerably better with ordinary soap than with the recommended synthetic detergent, *Tide*; in fact, with soap the *Maytag* automatic gave results substantially equal to those obtained with the *Maytag* nonautomatic wringer-type machine. In testing all appliances, the manufacturer's instructions are carefully followed, for the very good reason that he may be expected to know how his machine can be used to best advantage, and because consumers will have no basis for knowing of a better procedure. CR's washing tests for these machines confirm other studies which have shown that, except for laundering in hard water, most synthetic detergents are not so efficient as soaps for washing soiled cotton fabrics. The ratings are based on the results obtained in washing when the manufacturer's instructions were followed.

The following report covers five automatic washing machines. Three others, one a nonautomatic machine, are now undergoing tests.

A. Recommended

Whirlpool, Model 81561 (Nineteen Hundred Corp., St. Joseph, Mich.) \$300 (\$280 without suds-return feature). Fully automatic, agitator type. Cabinet, 29½ in. wide x 35½ in. high x 26 in. deep; finish, baked enamel. Machine does not require bolting to floor. Temperature of water is selected before wash period by manually turning dial to "Hot," "Medium," or "Warm." Total time of the cycle with 20-minute wash period, about 42½ minutes. If desired, wash water can be saved and re-used for a second wash. The rinse water cannot be saved for reuse. At the end of the cycle, turning the dial to suds return position pumps the wash water from the laundry tub or other container back into the machine. Hot and cold water lines were rubber hoses fitted with standard threaded connections for attaching to hot and cold water faucets. Maker's recommended capacity, 9 lb. of clothes. Required approximately 25 gal. of hot water and 10½ gal. of cold water per cycle. Hot water per lb. of clothes, approximately 3 gal. Amount of water used governed by float device (very desirable, in principle, as machine can be used in homes having low water pressure and flow). If the first wash water were re-used, second cycle will require 10½ gal. of hot water and 10 gal. of cold water. For washing small loads requiring less wash water, water supply can be shut off when water reaches desired level by manually advancing dial to desired washing time. Energy consumption per cycle, 205 watt-hours. Washing effectiveness, very good. Drying effectiveness, very good (water left in clothes amounted to 70% of the dry weight of clothes). Vibration during normal washing and removal of water, very slight. Had automatic switch which shut off machine if load was excessively unbalanced during spin cycle. An ultraviolet lamp said to "tend to purify air, water and clothes" has been installed in current models; believed to have been introduced primarily for "sales appeal"; another new feature,



Maytag Model AMP

a buzzer which operates about 1 minute before the end of the cycle. This machine is essentially the same as the *Kenmore* automatic washer sold by Sears, Roebuck & Co. Workmanship and construction judged good. 3

B. Intermediate

Coronado, Type G 149CP (Beam Mfg. Co., Webster City, Iowa; distributed by Gamble Skogmo Corp., Minneapolis, Western Auto Supply Co., and others) \$260. Semi-automatic, agitator type. Cabinet, 26½ in. wide x 27 in. deep x 36 in. high; finish, baked enamel. Washer does not need to be bolted to the floor. (Linoleum pads are provided to be cemented to floor under the feet of the machine.) Uses two ¼-hp. motors. Spinner tub rotated by a "fluid drive" which is claimed to protect motor against overloading in the spinning operation. Temperature of water is selected before wash period by manually turning dial to "Hot" or "Warm." Filling is not controlled automatically (a disadvantage, but does permit less water to be used for partial loads). Operator is required to shut off the water manually when level of water reaches a mark on the agitator, by turning dial to "Wash" position; if this is not done, machine will overflow onto floor, a decided disadvantage. Maker's recommended capacity, 8 lb. of clothes. Total time of the cycle, about 35 minutes. Hot and cold water lines were rubber hoses fitted with standard threaded connections for attaching to hot and cold water faucets. Water drains through rubber hose which can be hooked over edge of laundry tub. Required approximately 16½ gal. of hot and 25½ gal. of cold water per cycle. Hot water per lb. of clothes, approximately 2 gal. Amount of water used in rinse cycles controlled by water flow valve, hence may not be suitable for use in homes where water pressure and/or rate of flow is low. Energy consumption per cycle, 260 watt-hours. Washing effectiveness, very good. Drying effectiveness, only fair (water left in clothes, 165% of dry weight of clothes). Vibration during normal washing and centrifugal drying operations, very slight. Workmanship and construction judged good. 2

Hotpoint, Cat. No. 20LC-2 (Hotpoint, Inc., 5600 W. Taylor St., Chicago 44) \$300. Semi-automatic, agitator



Apex Wash-A-Matic Model 2-804P

type. Cabinet, 26½ in. wide x 27 in. deep x 36 in. high; finish, porcelain, except bottom skirt and lid, which are baked enamel. This machine is similar to the *Coronado*, but had some refinements, e.g., water would not overflow onto floor if housewife neglected to turn off when wash water reached correct level, and used two 1/3 hp. motors as against two 1/4 hp. motors on *Coronado*. Used approximately 13.5 gal. of hot water (about 3 gal. less than *Coronado*) and 27½ gal. of cold per cycle. Hot water per lb. of clothes, 1.7 gal. Washing effectiveness, very good. Drying effectiveness, only fair (water left in clothes amounted to 175% of dry weight of clothes). Workmanship and construction judged good. For other comments, see *Coronado*. 3

Maytag, Model AMP (The Maytag Co., Newton, Iowa) \$280. Fully automatic, agitator type. Cabinet, 25½ in. wide x 27½ in. deep x 36 in. high; finish, baked enamel. Machine does not require to be bolted to floor. Opening of top lid automatically shuts power off. Temperature of water is selected before wash period by manually turning dial to "Hot" or "Warm." Total time of the cycle, maximum, about 33 minutes. Maker's capacity rating, not stated; instructions call for placing clothes loosely in tub until top row of holes in tub is covered. When this was done, load was found to be about 5 lb. of dry clothes. In use with 5 lb. load, washer required approximately 20 gal. of hot water (4 gal. per lb. of clothes) and 7½ gal. of cold water per load. Amount of water used governed by float device (very desirable, in principle, as machine can be used in homes having low water pressure and flow). Energy consumption per cycle, 115 watt-hours. Washing effectiveness, fair with 5-lb. load, but gave poor results with 6- and 8-lb. loads. Drying effectiveness, very good (water left in clothes, 60% dry weight of clothes). Vibration during normal washing and removal of water, very slight. Machine was equipped with automatic switch which shut off machine if load was excessively unbalanced. Workmanship and construction judged good. 3

Amount of Water Used by Five Machines Tested

	Capacity in lb. of clothes	Water Requirements, Gal.		
		Cold Water	Hot Water	Hot Water per lb. of clothes, approx.
<i>Coronado</i>	8	25½	16½	2.1
<i>Hotpoint</i>	8	27½	13½	1.7
<i>Whirlpool</i>	9	10½	25½	2.8½
<i>Maytag</i>	5	7½	20	4.0
<i>Apex</i>	8	21	14½	1.8

¹Does not include use of suds-return feature, see listing.

C. Not Recommended

Apex Wash-A-Matic, Model 2-804P (Apex Electrical Mfg. Co., Cleveland 10) \$300. Fully automatic, "Bouncing Basket" type. Cabinet, 26 in. wide x 27 1/4 in. deep x 36 in. high; finish, baked enamel except for center portion which is porcelain. Machine is not required to be bolted to cement floors, but footplates into which 4 leveling screws fit are required to be cemented to the floor. On wood floors, two channels are provided which are required to be fastened to floor and machine. Temperature of wash water is selected before each wash period by manually turning dial to "Hot" or "Warm." Total time of the cycle, about 29 minutes. Hot and cold water lines were rubber hoses fitted with standard threaded connections for attaching to hot and cold water faucets. Water drains through rubber hose which can be hooked over edge of laundry tub. Maker's recommended capacity, 8 lb. Tub made of a hard plastic material. Loading was through a top lid (with glass insert)

which shut off machine when lifted. Had interior light. Required approximately 14 1/2 gal. of hot water (1.8 gal. per lb. of clothes) and 21 gal. of cold water per cycle. Amount of water used controlled by a timing device, hence machine is considered unsuitable for use in homes where water pressure and/or flow are low. Energy consumption per cycle, 300 watt-hours. Washing effectiveness, below average, and uneven. Manufacturer now recommends the use of *All* or *Spin* (synthetic detergents), but CR's tests showed washing results were somewhat inferior when these were used instead of soap. Drying effectiveness, fairly good (water left in clothes, 110% dry weight of clothes). Machine has a hydraulic balancing feature; vibration was present, but slight. Although this washer has some desirable features, its method of washing did not get the clothes as clean as some other machines, specifically those using the agitator type of action. Workmanship and construction judged good. 3

Paste for Etching Glass

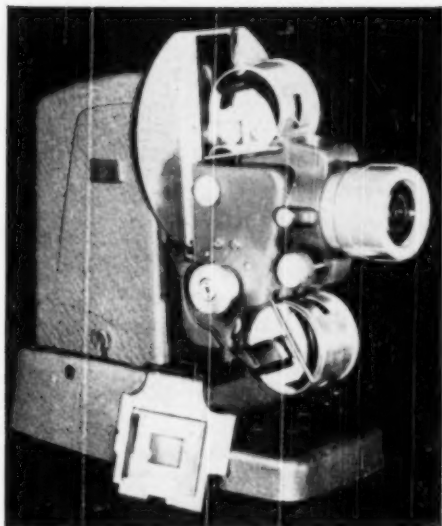
SOMETIMES it is desired to etch glass for decorative purposes, such as placing initials or monograms on table glassware, designs on mirrors, and the like. The amateur photographer may wish to prepare a focusing screen of finer grain than ordinary ground glass for his camera, or he may wish to etch graduations on plain chemical beakers, or words for identifying contents of bottles used for storing solutions.

Etching of glass can be done by subjecting the surface of the glass to the fumes of hydrofluoric acid, but more conveniently and with less hazard, by use of a product called *Etchall*. *Etchall* is sold by handicraft supply stores, hobby material stores, and by some department stores, in 75c to \$1.85 "kits"; the kits usually contain a tube of *Etchall*, aluminum foil for making stencils, some designs, and a knife for cutting stencils. The first step with *Etchall* is to cut the desired design from a sheet of thin impervious material such as metal foil; a sharp knife should be used in order to produce clean edges. When the stencil is stuck tightly to the glass surface to be etched, the foil protects that part of the surface that it covers, whereas the bare glass under the cut-out design is attacked by the "etchant."

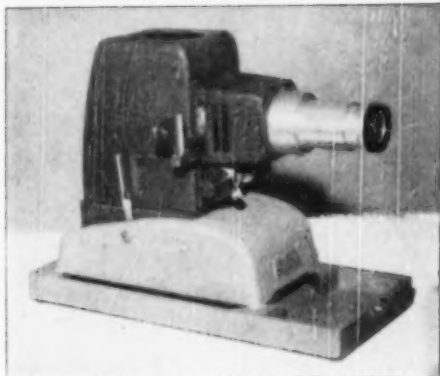
Etchall was analyzed for CR, and was found to contain about 28 percent of ammonium bifluoride (a material widely used in industrial etching of glass and porcelain) mixed into a paste with starch and water. It must be used with great care, because it is a severe irritant to the skin. (It is, of course, exceedingly poisonous, if taken internally.) The only warning that appeared on the tube stated, "Caution: POISON if taken internally"; a totally

inadequate warning to users not familiar with the chemical properties of ammonium bifluoride and other strongly caustic substances. There would seem to be doubt as to the wisdom of using *Etchall* under conditions where the user might breathe the vapors produced during the process. Certainly it should never be used under industrial conditions except with an exhaust hood or its equivalent, or by a consumer who would have to handle it in closely confined quarters and at fairly high room temperatures. (With reasonable care, it is believed that the amount of acrid vapors produced might not be of any special consequence.)

The carton in which *Etchall* came bore two corporate names (Pine Consolidated Corp., 70 Pine St., N.Y.C.; and Etchall, Inc., N.Y.C., without street address being given). In addition, there was the name of a Canadian distributor, Lewis Craft Supplies, Ltd., 645 Yonge St., Toronto. Neither of the New York City corporations was found listed in the current New York City phone book. However, Richtone Artists Materials Co., Inc., 1129 Sixth Ave., N.Y.C.; Universal Handicrafts Service, Inc., 1267 Sixth Ave., N.Y.C.; and Macy's, Herald Sq., N.Y.C., stock the item regularly, and it can doubtless be obtained from one of these firms by mail. The difficulty mentioned in locating the primary source of supply is a matter of more than ordinary interest to consumers, since in general it is unwise to buy materials, especially those which might include an element of hazard, where the original producer, or responsible source of the product, cannot be clearly identified and located in case of need.



Argus Slide Projector PA-300



Spencer Delinescope Model MC

Photographic Equipment

Slide Projectors

For 2 in. x 2 in. Slides and Strip Film

A. Recommended

Spencer Delinescope, Model MC, No. 3800 (American Optical Co., Scientific Instrument Div., Buffalo 15) \$88 with f:3.75 triplet lens of 5-in. focal length, carrier for 2 in. x 2 in. slides, and case. Deluxe case \$10 extra; strip film unit \$10.50 extra. Had 300-watt lamp with 6 instead of the customary 2 filament coils, 2 aspherical condensing lenses, and a heat-resisting glass plate to protect film. A quiet and vibrationless fan gave adequate cooling. Lever tilting device, convenient and satisfactory in operation. Performance of lens, good; no color fringing, and field almost flat. Focusing by helical mount, smooth and positive. Ratio of screen illumination between corners and center, 85% for 35 mm. slides (very good), 74% for Bantam slides (good). Illumination in lumens (average foot candles times screen area in sq. ft.), approximately 560 (good). With a 200 watt bulb, illumination was about 45% of that with 300-watt bulb, but the amount of light was ample for home projection, even with rather dense Kodachromes. 3

B. Intermediate

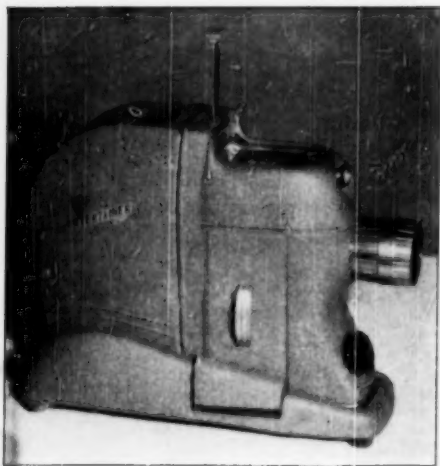
Argus PA-300 (Argus, Inc., Ann Arbor, Mich.) \$75 with case. Designed for 2 in. x 2 in. slides and 35 mm. film in rolls, single frame 18 x 24 mm. or double frame

24 x 36 mm. Equipped with f:3.5 Argus coated anastigmat lens of 5-in. focal length, 300-watt lamp, heat-resistant glass plate to protect film, and triple condenser. Focusing by friction drive that worked smoothly but was rather difficult to adjust closely because of the small size of the milled disk provided for turning. Lens had flat field and showed no color fringes; image considered satisfactory (above average). Ratio of illumination between corners and center, 62% (only fair). Illumination in lumens (average foot candles times screen area in sq. ft.), 244 (poor). Outside of body of projector became too hot to touch, but films shown for the short time required in home projection were not damaged. 2

Spencer Delinescope, Model MC, No. 3800 A (American Optical Co.) \$97 with f:3.5 lens of 3½ in. focal length. Except for lens, the projector is exactly the same as the *Model MC, No. 3800* listed under *A. Recommended*. Definition of lens equivalent to that of the 5-in. focal length lens, but evenness of illumination was poor. (Ratio of illumination between corners and center was 48% for 35 mm. slides, 32% for Bantam slides.) 3

C. Not Recommended

S. V. E. Entertainer, No. 300 (Society for Visual Education, Inc., 100 E. Ohio St., Chicago 11) \$75 including case. Designed for 2 in. x 2 in. slides only. Equipped with coated anastigmat triplet lens of 5-in. focal length which is focused by rotation of mount having a pressed helical thread, 300-watt lamp, heat-resistant glass plate



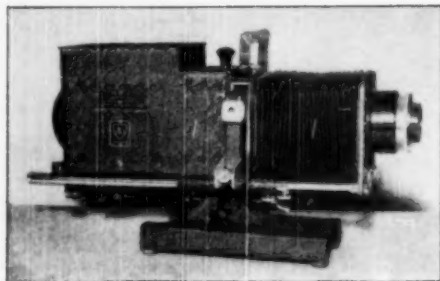
S.V.E. Entertainer Slide Projector Model 300

to protect film, and triple condenser. Slides are held in a magazine at the top of the machine. Capacity, 50 slides in cardboard mounts or 20 when bound in glass. A plunger pushes each slide into position and slide drops into a receiving box built into the projector as each subsequent slide is brought into position for viewing. A spacing adjustment on the magazine permits the size of the slot to be changed to take either the cardboard or glass slides. Field of lens was not flat and image would not be acceptable to critical user. Ratio of illumination between corners and center, 89% (very good). Illumination in lumens (average foot candles times screen area in sq. ft.), approximately 430 (very good). Slides were badly overheated. Slides in cardboard mounts curled up after 30 seconds in viewing position. 2

For 3-1 4 in. x 4 in. and 2-3 4 in. x 2-3/4 in. Slides

A. Recommended

Spencer Delineascope, Model D, No. 3476 (American Optical Co.) \$93 with case. A standard-sized projector designed primarily to take regular 3 1/4 in. x 4 in. lantern slides, but adapted for 2 3/4 in. x 2 3/4 in. slides (for 2 1/4 in. x 2 1/4 in. transparencies). A slide carrier for 2 in. x 2 in. slides is also available at \$8.50 extra. Uncoated triplet-type lens of 6 1/2 in. focal length. (Lenses of 8, 10, 12, and 16 in. ordinarily used for the 3 1/4 in. x 4 in. slides were also available.) Had 500-watt lamp, heat-resistant glass plate to protect film, and double condenser. Outside of projector body became uncomfortably hot to the touch, but heat was judged not sufficient to harm slide projected for normal length of time. Longitudinal adjustment provided for lamp (good feature). Definition of lens, good; gave flat field, sharp to corners with no color fringes. Ratio of screen illumina-



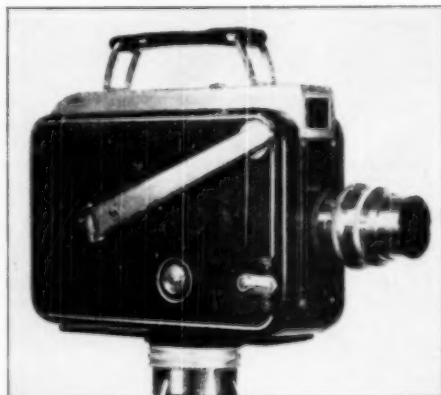
Spencer Delineascope Model D 3476

tion between corners and center, 83% (very good). Illumination in lumens (average foot candles times screen area in sq. ft.), approximately 225 — somewhat low, but judged satisfactory. Relatively low illumination was due to the condensers having to be designed for the larger 3 1/4 x 4 in. slides and thus not working as efficiently when used with 2 3/4 in. x 2 3/4 in. and smaller slides. 3

Motion Picture Camera, 16 mm.

B. Intermediate

Keystone Magazine, Model K-50 (Keystone Mfg. Co., Boston) \$146 including federal excise tax. Equipped with Wollensak Cine Raptar f:1.9 coated lens, focal length 1 in. in focusing mount. Uses standard Eastman Kodak 16 mm. magazines. View-finder adjustable for lenses of 1-, 2-, and 3-in. focal length. Rated shutter speeds of 8, 16, 24, and 64 frames per second. Motor ran about 10 ft. of film for each full winding and had a positive stop so that it did not slow down toward end of run. Lens definition was satisfactory, projection steady, and operation smooth and quiet. Winding handle of weak construction; otherwise camera would have warranted an A rating.



16 mm. Keystone Magazine Camera

"Imitation Reflex" Camera

B. Intermediate

Argoflex 75 [Argus, Inc., Ann Arbor, Mich.] \$14.89 including tax; flash unit, \$4.08 including tax; case, \$2.50. A fixed-focus "imitation reflex" camera making 12 pictures each $2\frac{3}{4}$ in. x $2\frac{1}{4}$ in. on a No. 620 roll. Equipped with single lens of 75 mm. focal length, speed stated to be f:13. Shutter had one speed (1/50 second) and time (actually bulb), and had flash contacts for operation of *General Electric SM* or *Sylvania SF* flash bulbs. Whether the additional cost of the flash unit and cost of flash bulbs are justified on a camera of such moderate capabilities is a matter for the prospective buyer to decide for himself. As a rule little use of these facilities is warranted by novices, especially with a cheap camera. Equipped with device to prevent double exposures. Hooded finder, about $1\frac{3}{8}$ in. square, with rounded corners. Camera body is made of plastic¹ with metal trim. Lens performance average for its type, about equivalent to that of the \$2.75 *Kodak Baby Brownie Special*. Construction judged satisfactory.

Photofinishers

B. Intermediate

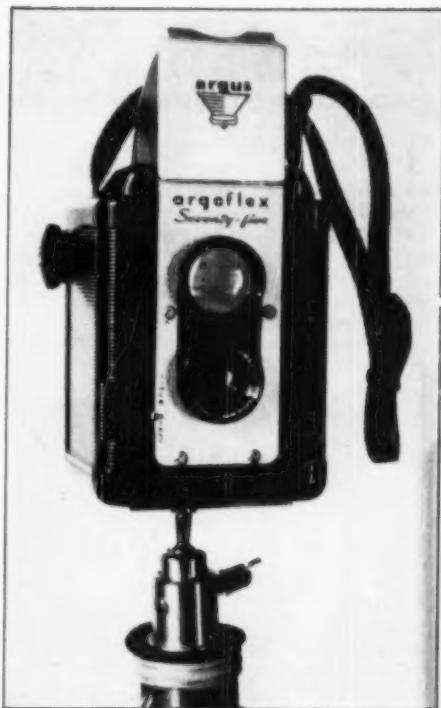
Minilabs, P.O. Box 485, Englewood, N. J. 40c for developing one No. 120 roll and making 8 prints. Quality of developing was good; film negatives were clean and had not been overheated in printing, as often occurs in commercial finishing shops. The quality of the prints, however, was mediocre and indicated lack of care in the printing operation. On developing alone, this firm would warrant an *A* rating. 1

C. Not Recommended

Pickering Photo Service, 2447 Prouhet Ave., St. Louis 14, 35c for developing one No. 120 roll and 8 prints en-

¹Note: Cameras made of some kinds of plastic are not safe against damage if left exposed to high temperatures, as, for example, in hot rays of the sun (e.g., on automobile shell); at temperatures sometimes reached in a closed car in summer, some plastic cases will be considerably deformed and the camera perhaps rendered useless.

An *Agfa Panda* camera exhibited this fault; dealers say that the public tends to avoid cameras of plastic, which are likely to be easily breakable, if not subject to damage when exposed to high temperatures.



Argoflex "Imitation Reflex" Camera

larged to $3\frac{1}{4}$ in. x $4\frac{1}{4}$ in. Developing about average for commercial work; prints fair, but back of prints stained either from old and dirty developer or inadequate washing. Film was not cut into separate frames as is common practice, but was rolled, and mailed without adequate protection; as a result, the strip of film was creased and worthless for making further prints. Service slow; 3 weeks passed from time of mailing until finished prints were returned to N.Y.C. address. 1

Picture Hanger

Pic-Hang is a "self-leveling" picture hanger manufactured by Franklin Picture Frame Co., 2019 W. Montrose Ave., Chicago 18. It is sold in five-and-ten-cent stores at 10 cents for a card with two hangers and a package of nails. The device, which is intended to be fastened to the back of the picture frame by two nails, is a small bracket about $2\frac{1}{2}$ x $\frac{1}{4}$ inches, having seven notches in one edge. The picture is hung by hooking the notched lower edge of the *Pic-Hang* over a nail in the wall at the proper location, and moving to a notch or two toward the right or left until the picture hangs vertically.

The device was practical in some respects. It eliminated need for picture wires, and if two nails were used, it would keep a picture from shifting on the wall. It did not, however, eliminate the need for measuring as claimed. Even when some pains were taken to center the hanger on a small picture, it was found that the picture did not hang straight because the base of a tooth happened not to fall at the direct center of the frame. The nails provided were all of one size, although directions called for using short nails for small light pictures and long nails for heavier pictures.

Electric Sprayer

THE Burgess *Vibro-Sprayer* has been widely advertised for painting floors, ceilings, walls, woodwork, furniture, toys; enameling auto bodies, varnishing table tops; spraying insecticides, etc. The promoters' claims have even gone so far as to say "Yes, now you can do a professional painting job on *everything* [italics ours—CR] in and around your house with this amazing, brand new, self-contained electric paint sprayer."

Purchasers, we believe, are pretty likely to be

disappointed, upon receiving the sprayer and reading the instructions, to find that the device is quite limited in its uses. The instructions state, for example, that the *Vibro-Sprayer* is not recommended for use with "heavy" outside paints, flat wall paints, "heavy" undercoaters, and water-based paints.

The first sprayer received by CR did not function at all, and was returned to the dealer for repair or replacement. A second sample was then purchased. As it was recommended for nearly all glossy enamels, enamel suitably thinned according to directions was used in making tests. The results obtained with *Vibro-Sprayer* were quite unsatisfactory; even when the flow adjustment was cut down to its limit in accordance with the directions, the sprayer threw splotchy droplets of enamel, rather than a fine, even spray, as was given by one of the usual small compressed-air paint sprayers, such as the one shown in Figure 3. (The particular sprayer used by CR in the comparison was made by W. R. Brown Corp., Chicago, and sells for around \$25 including compressor and gun, but not including a motor.)



Figure 1 — Burgess Electric Vibro-Sprayer Model VS-500

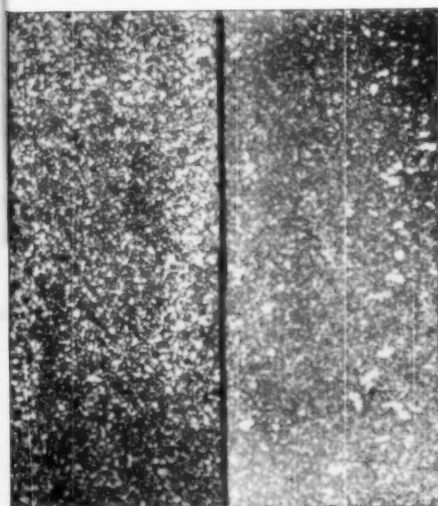


Figure 2 — Examples of uneven spraying obtained with the *Vibro-Sprayer*.

Left — enamel used as supplied by paint manufacturer.
Right — enamel thinned (3/4 normal concentration) according to directions of manufacturer of sprayer which ranged from 3/4 to 5/6 of normal concentration.

C. Not Recommended

Burgess Electric Vibro-Sprayer, Model VS-500 (Burgess Battery Co., Handicraft Div., Lake Zurich, Ill.) \$12.95 on 10 days' trial, with full purchase price to be refunded if not satisfactory. (Now being sold in some stores at \$9.95.) A self-contained unit requiring no motor or compressor, operated by a small magnetic vibrator, and needing only to be plugged into 115-volt a-c outlet. Glass paint jar holds 25 oz. and if broken can be replaced by ordinary "Mason jar." Types of material that can be sprayed are very limited, and include glossy enamel (thinned 1 part thinner to 3 to 5 parts enamel), varnish, shellac, lacquer, insecticides, and disinfectants. Quality of work performed judged unsatisfactory.



Figure 3 — Typical small compressed-air paint-spraying outfit.

RATINGS of MOTION PICTURES

THIS section aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines—some 19 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

Box Office, Charm, Chicago Daily Tribune, Cue, Daily News (N.Y.), The Exhibitor, Harrison's Reports, Motion Picture Herald, National Legion of Decency List, Newsweek, New York Herald Tribune, New York Times, Parents' Magazine, Release of the D.A.R., Premiere Committee, Successful Farming, Time, Variety (weekly), Weekly Guide to Selected Motion Pictures (National Board of Review of Motion Pictures, Inc.), and Unbiased Opinions of Current Motion Pictures which includes reviews by the General Federation of Women's Clubs, the American Legion Auxiliary, National Film Music Council, and others.

The figures preceding the title of the picture indicate the number of critics who have been judged to rate the film A (recommended), B (intermediate), or C (not recommended) on its entertainment values.

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:

ad—adventure hist—founded on historical incident
biog—biography mel—melodrama
c—in color (Technicolor, Cinecolor, Tricolor, Magnacolor, Vitacolor, etc.)
car—cartoon mus—musical
com—comedy mys—mystery
cri—crime and capture of criminals new—dramatization of a novel
doc—documentary soc—social-problem drama
dr—drama tas—travelogue
fan—fantasy war—dealing with the lives of people in wartime
wes—western

A	B	C		
6	9		Abandoned (Woman)	soc-dr A
5	9		Abbott and Costello Meet the Killer, Boris Karloff	com AYC
	3		Across the Rio Grande	wes AYC
2	4	1	Adam's Rib	com A
4	10	3	Adventures of Ichabod and Mr. Toad, The	mus-car-c AYC
1	4	2	Affair Blum, The	dr A
	7	4	Against the Wind	war-mel A
	3	4	Agitator, The	dr A
	7	3	Air Hostess	dr AYC
	4	2	Alias the Champ	com A
	11		Allmomy	mus-dr A
	9	7	All Over the Town	com AYC
5	4	3	All the King's Men	soc-dr A
	3	2	Always Leave Them Laughing	com A
	1	2	And Baby Makes Three	com A
	3	2	Angels in Disguise	cri-mel A
	2	11	Anna Lucasta	dr A
10	8		Any Number Can Play	cri-mel A
	3		Apache Chief	mel A
	8	2	Arctic Fury	mel AYC
	3	7	Arctic Manhunt	cri-mel AYC
	3		As You Like It	com AY
	5	2	Bandit King of Texas	wes AYC
	3		Bandits of El Dorado	wes A
	4	6	Barbary Pirate	mel A
	1	4	Barber of Seville	mus-dr A
5	6	2	Battleground	war-dr A
	2	10	Beyond the Forest	dr A
	10	5	Big Steal, The	mel A
	6	5	Big Wheel, The	mel A

A	B	C		
	2	2	Black Book, The	mel A
	5	11	Black Magic	hist-dr A
	2	6	Black Shadows	doc-c A
	1	5	Blazing Trail, The	wes AYC
	3	4	Blondie Hits the Jackpot	com AYC
	8	5	Blue Lagoon, The	adv-c A
	6	7	Border Incident	cri-mel A
	6	4	Bride for Sale	com A
	6	3	Brimstone	wes-c AYC
	7	8	Calamity Jane and Sam Bass	wes-c A
	2	3	Captain China	mel A
	4	1	Challenge to Lassie	dr-c AYC
11	7		Chicago Deadline	cri-mel A
	1	2	Chinatown at Midnight	cri-mel A
1	5	11	Christopher Columbus	hist-dr-c AYC
2	12	2	Come to the Stable	dr AYC
	2	4	Counterpunch	com A
	3	1	Cowboy and the Indians, The	mus-wes AYC
	1	4	Dalton Gang, The	wes A
2	4		Dancing in the Dark	mus-com-c A
	1	4	Dangerous Profession, A	cri-dr A
	3	3	Daring Caballero, The	wes A
	3	9	Daybreak	dr A
	3	2	Deadly in the Female	cri-mel A
	5	1	Dear Wife	com A
	6	3	Deputy Marshal	mus-wes AYC
	6	2	Devil's Henchmen, The	cri-mel A
	8	9	Doctor and the Girl, The	dr A
1	2	6	Doolyn	dr A
	7	2	Doolins of Oklahoma, The	wes A
	8	1	Down Dakota Way	mus-wes-c AYC
	5	1	Down Memory Lane	com AYC
	2	3	Earth Cries Out, The	war-dr A
	6	7	Easy Living	dr A
	13	8	Edward, My Son	dr A
2	12	2	Everybody Does It	mus-com A
	5	1	Facts of Love, The	com A
4	9	1	Fallen Idol, The	dr A
	6	1	Fame is the Spur	dr A
	1	2	Fantastic Night	fan A
1	13	3	Father Was a Fullback	com A
	3		Feudin' Rhythm	mus-wes A
	3	7	Fighting Kentuckian, The	hist-dr A
	3	5	Fighting Man of the Plains	wes-c A
	1	2	Fighting Redhead, The	wes-c AYC
	4		First Front, The	war-dr A
	8		Flame of Youth	mel A
	5	2	Flaming Fury	mel AYC
	3	2	Flight into France	war-dr A
	5	7	Follow Me Quietly	cri-mel AYC
	4	11	Forbidden Street, The	nov A
	1	8	Forgotten Women	dr A
	9	8	Fountainhead, The	dr A
	1	2	Francois Villon	dr A
	3	4	Free for All	com AYC
	4		Frontier Revenge	wes AYC
	4		Frustration	dr A
	6	4	Gal Who Took the West, The	mus-wes-c A
	1	3	Germany, Year Zero	war-dr A
	9	5	Girl from Jones Beach, The	com A
	7	6	Girl in the Painting, The	war-dr A
	1	4	Golden Madonna, The	dr A
	5	1	Golden Stallion, The	mus-wes-c AYC
	3	1	Grand Canyon	com-c AYC
	1	8	Great Dan Patch, The	dr A
	1	7	Great Gatsby, The	dr A
	4	3	Great Lover, The	com A
	5	10	Great Sinner, The	dr A
	1	7	Guinea Pig, The	dr AY
	4		Gun Runner	mus-wes AYC
	6	9	Heiress, The	dr A
	3	4	Hold That Baby	com AYC

A	B	C		
6	—	—	Holiday Affair.....	com AYC
2	—	—	Holiday in Havana.....	mus-com-c A
—	3	—	Hollywood Burlesque.....	mus-com A
3	11	4	Home of the Brave.....	propaganda-dr A
—	—	3	Horsemen of the Sierras.....	wes AYC
1	10	—	House Across the Street, The.....	cri-mel AY
2	8	5	House of Strangers.....	dr A
—	10	1	I Married a Communist.....	mel A
1	12	2	I Was a Male War Bride.....	war-com A
—	—	—	Ichabod and Mr. Toad, see Adventures of	
2	12	3	In the Good Old Summertime.....	mus-com-c AYC
—	1	2	Incorrigible.....	dr A
—	3	—	Indian Scout.....	mel AYC
—	3	2	Inspector General, The.....	mus-com-c AY
—	1	2	Interference.....	dr A
2	4	5	Intruder in the Dust.....	soc-dr AY
—	2	4	It Happened in Europe.....	war-dr A
14	2	—	It Happens Every Spring.....	com AYC
2	8	3	It's a Great Feeling.....	mus-com-c A
—	5	2	Jiggs and Maggie in Jackpot Jitters.....	com AYC
—	7	9	Johnny Allegro.....	cri-mel AY
—	8	5	Johnny Stool Pigeon.....	cri-mel AY
5	11	2	Joison Sings Again.....	mus-biog-c A
—	—	3	Judge, The.....	cri-mel A
—	1	5	Just a Big Simple Girl.....	com A
—	5	4	Kazan.....	mel A
3	7	1	Kid from Cleveland, The.....	dr AYC
3	4	—	Kiss for Corliss, A.....	com A
—	6	2	Laramie.....	mus-wes AYC
—	6	1	Leave It to Henry.....	com AYC
2	14	2	Look for the Silver Lining.....	mus-com-c AY
2	12	1	Lost Boundaries.....	soc-dr AY
—	—	3	Lost Youth.....	cri-mel A
—	7	4	Love Happy.....	mus-com A
—	4	—	Love Story.....	dr A
10	5	—	Lust for Gold.....	mel-c A
1	5	11	Madame Bovary.....	dr A
—	5	—	Maid of Formosa.....	dr A
—	5	5	Make Mine Laughs.....	mus-com A
—	—	3	Marked Girls.....	dr A
—	7	—	Mary Ryan, Detective.....	cri-mel A
—	2	3	Masked Raiders.....	wes A
—	4	3	Master of Bankdam.....	dr A
10	5	—	Mighty Joe Young.....	fan A
1	5	4	Miss Grant Takes Richmond.....	com A
—	4	4	Mr. Soft Touch.....	mel AYC
—	3	4	My Brother Jonathan.....	dr A
1	4	3	My Foolish Heart.....	soc-dr A
—	8	7	My Friend Irma.....	mus-com A
—	4	3	Mysterious Desperado, The.....	wes AYC
—	1	4	Nail, The.....	mel A
—	2	3	Navajo Trail Raiders.....	wes AYC
13	4	—	Neptune's Daughter.....	mus-com-c A
—	5	—	Night Time in Nevada.....	mus-wes-c AYC
—	9	8	Not Wanted.....	soc-dr A
—	8	4	Oh, You Beautiful Doll.....	mus-com-c A
—	5	—	Omoo-Omoo.....	adv A
12	3	—	Once More, My Darling.....	com A
—	4	8	Once Upon a Dream.....	com A
—	2	10	One Last Fling.....	com A
—	3	3	Operetta.....	mus-dr AY
—	2	1	Outcasts of the Trail.....	wes AYC
12	1	—	Passport to Pimlico.....	com AY
—	1	4	Peddler and the Lady, The.....	dr A
—	2	2	Peddlin' in Society.....	dr A
3	13	2	Pinky.....	soc-dr A
—	5	4	Post Office Investigator.....	cri-dr AYC
1	6	2	Prince of Foxes.....	hist-dr A
—	2	6	Prison Warden.....	cri-mel A
—	1	4	Project X.....	cri-mel A
—	3	3	Queen of Spades, The.....	dr A
—	2	1	Quick on the Trigger.....	mus-wes AYC
—	1	2	Range Justice.....	wes AYC
—	4	—	Ranger of Cherokee Strip.....	wes AYC
—	3	4	Reckless Moment, The.....	mel A
—	8	2	Red Danube, The.....	war-dr AYC

A	B	C		
—	6	10	Red, Hot and Blue.....	mus-com A
—	4	5	Red Light.....	dr A
—	7	7	Red Menace, The.....	propaganda-dr AYC
—	3	—	Riders of the Range.....	wes AYC
—	2	4	Rigoletto.....	mus-dr A
—	2	5	Rim of the Canyon.....	mus-wes AYC
—	4	5	Ringside.....	dr A
—	2	2	Roll, Thunder, Roll.....	wes-c AYC
—	10	7	Rope of Sand.....	mel A
—	10	8	Roseanna McCoy.....	mel A
—	3	—	Rubens.....	doc AY
—	4	1	Rusty's Birthday.....	dr AYC
—	7	3	Saints and Sinners.....	dr A
—	3	4	Samson and Delilah.....	dr-c A
—	2	3	San Antonio Ambush.....	wes AYC
—	1	2	Satan's Cradle.....	wes A
2	14	—	Savage Splendor.....	doc-dr A
—	11	6	Scene of the Crime.....	cri-mel A
—	2	1	Shadows of the West.....	wes AYC
—	2	2	Shamed.....	dr A
4	11	2	She Wore a Yellow Ribbon.....	wes-mel-c AYC
—	2	2	Silent Dust.....	war-dr A
—	3	—	Skyliner.....	mel AYC
—	6	7	Slattery's Hurricane.....	mel A
—	2	3	Somewhere in Berlin.....	dr A
—	3	1	Somewhere in Europe.....	dr A
—	—	3	Son of Billy the Kid.....	wes AYC
—	1	9	Song of Surrender.....	mus-dr A
—	2	3	South of Death Valley.....	wes AYC
—	2	4	South of Rio.....	wes AYC
—	—	3	South Sea Sinner.....	mel A
1	5	4	Spring in Park Lane.....	com A
—	3	—	Square Dance Jubilee.....	mus-wes AYC
—	3	3	Story of Molly X, The.....	cri-mel A
—	5	4	Story of Seabiscuit, The.....	dr-c AYC
—	8	5	Strange Bargain.....	mys-mel A
—	4	1	Strangers in the House.....	dr A
—	3	2	Sunshine Follows Rain.....	dr A
1	10	5	Sword in the Desert.....	war-mel A
1	10	5	Take One False Step.....	mys A
—	2	8	Task Force.....	war-dr-c AYC
—	4	1	Tell It to the Judge.....	com A
—	4	2	Tension.....	mys-mel A
—	3	6	That Forsyte Woman.....	dr-c A
—	2	9	That Midnight Kiss.....	mus-dr-c AY
—	4	2	Thelma Jordan.....	mel A
—	2	1	There's a Girl in My Heart.....	mus-dr AYC
2	12	2	They Live by Night.....	cri-dr A
—	—	—	(previously reviewed as The Twisted Road, CR Bul. March 1949)	
—	10	7	Thieves' Highway.....	cri-dr A
—	3	1	Threat, The.....	cri-mel A
—	4	—	Tight Little Island.....	com A
—	5	8	Tokyo Joe.....	war-dr A
—	15	5	Top o' the Morning.....	mus-com AYC
—	1	3	Tough Assignment.....	cri-mel AYC
—	—	3	Trail of the Mounties.....	cri-mel AYC
—	3	5	Trail of the Yukon.....	adv AYC
—	4	—	Trail's End.....	wes AYC
—	3	2	Train Goes East, The.....	com-c A
—	5	3	Trapped.....	mys-mel AYC
—	1	5	Treasure of Monte Cristo.....	mys-mel A
—	1	7	Under Capricorn.....	dr-c A
—	1	8	Under the Sun of Rome.....	war-dr A
—	—	3	Vautrin, the Thief.....	dr A
—	1	4	Vilna Legend, A.....	dr A
—	5	5	Weaker Sex, The.....	com A
—	4	—	West of El Dorado.....	mus-wes AYC
2	8	5	White Heat.....	cri-mel A
—	1	5	Wild Weed.....	mel A
—	5	6	Without Honor.....	mel A
—	3	6	Woman Hater.....	com A
—	4	3	Woman Trouble.....	com A
—	2	4	Wyoming Bandit, The.....	wes AYC
—	5	11	Yes Sir, That's My Baby.....	mus-com-c AYC
—	2	8	You're My Everthing.....	mus-com-c AYC
—	4	—	Youth of Athens.....	war-dr A
—	1	8	Zamba.....	adv AYC

The Consumers' Observation Post

(Continued from page 4)

normal conditions of supply and demand warrant has given other groups inspiration to ask to be cut in on the gravy. One trade journal demands to know why manufacturing industries should not be supported at a profitable level, since their continuation at a high level of activity is essential to prosperity in this country. Food brokers, too, are suggesting that if the farmers are to be subsidized, the food distributor should be taken care of also. Just label it "welfare" and the consumer-taxpayer is apparently forced to be Lady Bountiful of unlimited means who will foot the bill for every pressure group that demands it.

* * *

THE PNEUMONIA SEASON IS UPON US, and physicians have a special word of warning to the heavy drinker. It has been observed that he is likely to die quickly if he contracts the disease, even if he is known as a person "who carries his liquor well."

* * *

THE SELF-SERVICE FILLING STATIONS in Southern California, where the thrifty motorist could save 5 cents a gallon by "filling his own," have been made the target of anti-competition and, in effect, anti-consumer legislation. Under a new California law, they are now required to include in their advertising of "5 cents a gallon discount," in letters of equal size, the total price per gallon and the brand name of the gasoline offered for sale - all this in neon lights. The net result is that the effectiveness of the advertised price reduction is lost in the profusion of information offered.

* * *

IF YOUR BEST RECORDS are beginning to sound inharmonious and displeasing to the ear when played on your present phonograph, consider installing a new pickup cartridge before you decide to turn in the entire set for a new one. The deterioration in the quality of the music may be due entirely to the fact



*Your wife wouldn't think of doing the family laundry by this out-dated-method, but
are you making
the family purchases on some such basis?*

MANY improvements have been made in household appliances since the days when the washboard and galvanized tub were standard equipment. The new automatic washing machines are a much more complex device. You need the knowledge and experience of qualified engineers to select one wisely or to help you determine whether for your particular needs an automatic washer will be more satisfactory than one of the non-automatic type. Perhaps you are buying a mechanical refrigerator and want to know what the monthly cost of operation will be for particular makes. Again you need competent unbiased, scientific advice.

WHETHER it be a new washing machine, mechanical refrigerator, or some other household appliance, a television set or a new radio-phonograph combination, you can make your decision in modern, up-to-date fashion by consulting Consumers' Research Bulletin. Many of our subscribers have told us that they save more than the yearly subscription price on a single purchase.

USE the convenient order blank on the next page to place your subscription today. If you wish to be forehanded, include an order for the forthcoming 1950-51 edition of the Annual Cumulative Bulletin, a handy compilation of a wide range of CR's findings, scheduled for September 1950.

that the stylus is worn, and if it is worn, it is damaging a record every time it is played. As CR's tests show, the jewel-tipped (sapphire) needles are not permanent as commonly claimed, but will damage records by wear after 100 to 250 playings. (Diamond needles last much longer, but are also not good indefinitely.) It is estimated that the performance of a very large proportion of phonographs and radio-phonographs would be improved by substituting a new pickup such as the new General Electric "Variable Reluctance" cartridge with replaceable stylus for present equipment. The job can be quickly done by any radio serviceman for a charge that ought not to exceed \$20 to \$25, which includes the price of a new cartridge (and a preamplifier, if one is required because the previous pickup was of the crystal type).

* * *

THE VITAMIN CONTENT of cooked vegetables has been the theme of sales claims for various types or makes of kitchenware from time to time. According to studies made at the Virginia Agricultural Experiment Station, however, large losses of vitamin C occur in any method of cooking. The researchers came to the conclusion that factors such as variety, weather, soil, and maturity had a greater influence on the vitamin content of cooked vegetables than the way they were cooked.

* * *

GROUND-UP RUBBER has been used in an asphalt mixture to provide a new surface for a children's playground at one of the city schools at Akron, Ohio, reports Science News Letter. The object is to provide a playground surface entirely free from abrasive particles and thus eliminate the danger of skinned arms, legs, and faces. The installation was made by Portage Bituminous Company, with rubber from Goodyear Tire and Rubber Company.

* * *

RECENTLY TESTED:

Spiffy Invisible Collar "Stay Down" (Crest Specialty, Not Inc., Chicago 6). 25 cents plus tax, is sold in men's clothing stores. It is a small wire gadget designed to fit under the tie and reinforce the points of a man's shirt collar so that it does not wrinkle or wilt. It is held in place by its two pin ends. For men who find it important to maintain a band-box appearance and whose collars have a tendency to wilt or curl at the tips in a hot room or in a warm climate, the little gadget is useful to keep the freshly-ironed look of a shirt collar. The device was found to work best on a collar with a long tab. A similar device called Crestay New-Improved Collar Streamliner (Crest Specialty Co., Chicago), which sells for 10 cents in variety chain stores, was considered to be less effective.

Consumers' Research, Inc. Washington, N. J.

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PHONOGRAPH RECORDS

Please Note: In the ratings AA indicates highly recommended; A, recommended; B, intermediate; C, not recommended. Although nearly all new releases of serious music are heard, space narrows comment, generally, to items which merit high ratings

Beethoven: *Trio in E Flat Major* (No. 2, Op. 70) & **Haydn:** *Trio in G Major* (No. 1). Totenberg, Baller, Rejto (violin, piano, cello). Allegro LP 4. \$4.85. Neither trio is available on any other domestic label. Glossy performance better suited to the Haydn than the Beethoven. Piano recorded well, cello rather distant. Reproduction of the violin E string is nasal, fuzzy, distorted. Highs appear to be pre-emphasized, necessitating roll off. Some wavering of pitch.

Interpretation A
Fidelity of Recording B

Brahms: *Symphony No. 1*. Amsterdam Concertgebouw Orchestra under Von Karajan. 12 sides, Deutsche Grammophon Set 24. \$16.80. A great symphony. Von Karajan takes the mellow road and examines blades of grass as he strolls. His orchestra plays with commendable shading. The recording is full bodied, heavily bassed, but lacks brilliance. Splendid resonance. Altogether, a worthy addition to the catalog. Yet, my favorite set of this work remains the Toscanini-Victor Set 875 (\$7.25) which offers a striking, dramatic, broadly phrased performance, brighter but less rich recording pressed on noisier surfaces.

Interpretation A
Fidelity of Recording A

Britten: *Variations on a Theme of Frank Bridge*. Boyd Neel String Orchestra under Neel. 6 sides, London Set 100. \$7.35. Ingenious variations written a dozen years ago by England's foremost young composer. Strictly for the connoisseur. I cannot imagine a better performance nor, in these days, a better recording.

Interpretation AA
Fidelity of Recording AA

Holst: *St. Paul's Suite for Strings*. Boyd Neel String Orchestra under Neel. 4 sides, London Set 99. \$5.25. Deft, exhilarating music which draws on the folksongs "Dargason" and "Greensleeves." Conducted and played with care and sensitivity and marvelously recorded. How much better London manufactures 78's, at this stage, than LP's!

Interpretation AA
Fidelity of Recording AA

Miaskovsky: *Symphony No. 21*. Philadelphia Orchestra under Ormandy. **Bartok:** *Piano Concerto No. 3*. Sander with the Philadelphia Orchestra under Ormandy. Columbia LP 4239. \$4.85. Contemporary composers who were miles apart. Miaskovsky recalls Tchaikovsky. Until his death four years ago, Bela Bartok blazed new trails which are only now being recognized and praised by the advance guard. Stunning performance of both compositions. Big, clear, broad toned recording.

Interpretation AA
Fidelity of Recording AA

Mormon Tabernacle Choir of Salt Lake City. Columbia LP 2077. \$3.85. "O My Father," "Abide With Me," "A Mighty Fortress," and other sacred music sung with reverence. Exceptional enunciation for a group of this size, probably helped by superb acoustics of the Tabernacle. Depth and clarity, too, in the recording. Also, a little buzzing in the loudest passages.

Interpretation AA
Fidelity of Recording A

Mozart: *Piano Concerto No. 21*. Casadesu (piano) with the Philharmonic Symphony Orchestra of New York under Muench. Columbia LP 2067. \$3.85. Heart warming work featuring more display for the piano than usual with Mozart. Firm, well bound performance excellently recorded.

Interpretation AA
Fidelity of Recording A

Offenbach: *Gaité Parisienne Ballet & Russian Music*. Philharmonic Symphony Orchestra of New York under Kurtz. Columbia LP 4233. \$4.85. Gay, saucy music I thoroughly enjoy though "Parisienne" rates higher than the six short

compositions by Tchaikowsky, Shostakovich, Prokofiev, etc. Kurtz strives for vigor and gets it. First rate recording - even better, in the case of "Parisienne," than the famous 78 rpm. disks.

Interpretation AA
Fidelity of Recording AA

Strauss: *Ein Heldenleben*. Royal Philharmonic Orchestra under Beecham. 10 sides, RCA Victor Set WDM 1321. \$5.25. An elaborate, uneven tone poem, the last Strauss wrote. Better than average performance, surpassed only by Mengelberg's on Capitol Set 8013. Victor's new recording, made in England, tops Mengelberg's. Yet, I hear objectionable motor rumble in soft passages and less range and definition of instruments than I expect.

Interpretation A
Fidelity of Recording A

Strauss: *Till Eulenspiegel's Merry Pranks*, Cleveland Orchestra under Szell; & *Don Juan*, Pittsburgh Symphony Orchestra under Reiner. Columbia LP 2079. \$3.85. Two of Strauss' greatest tone poems performed with finesse and spirit. Szell's recording offers more body and general fidelity. Reiner's performance is badly recorded. Here is evidence which proves there can be no stock answer to the question, how good is the fidelity of LP's? Every side requires hearing and appraisal.

Interpretation AA
Fidelity of Recording B

Stravinsky: *Orpheus*. RCA Victor Symphony Orchestra under the Composer. 8 sides, RCA Victor Set WDM 1320. \$4.30. First recording of this work, which was completed in 1947. I judge the music is more effective with the ballet, as intended, than in concert. Yet, there are many lovely and dramatic pages here. Definitive performance and transparent, spacious recording.

Interpretation AA
Fidelity of Recording AA

Tchaikowsky: *Symphony No. 4* (9 sides) & *Serenade in G*; Waltz only (1 side). Boston Symphony Orchestra under Koussevitzky. RCA Victor Set WDM 1318. \$5.25. Stunning, virtuoso performance that dwarfs competitors. The fidelity comes between the Ormandy and the Kleiber. It needs more body and wider range for an AA rating. Side 6 wavers in pitch. Yet, considering all factors, many collectors will work up real enthusiasm for the Koussevitzky.

Interpretation AA
Fidelity of Recording A

Vivaldi: *Concerto Grosso in A Minor for Two Violins and String Orchestra*. Leipzig Gewandhaus Orchestra under Schmitz. 3 sides (1 blank side). Deutsche Grammophon Set 21. \$6.30. A 1943 recording of an exceptionally fine old work not available on domestic labels. Marvelous blending of orchestra with solo violins and altogether a noteworthy performance. Recording a mite thin in the upper frequencies but there is plenty of roundness to make the tone enjoyable. It is regrettable that this label charges as much for a blank side as for one with music.

Interpretation AA
Fidelity of Recording A

RECOMMENDED SINGLE DISKS

COLUMBIA: Ives sings "Worried Man Blues" and "Froggie Went a Courtin'" on 1-345. Turel sings 3 Chopin songs on 3-325. DEUTSCHE GRAMMOPHON: Städtisches Orchestra of Berlin plays Poot's "Allegro Symphonique" on 57272. Amsterdam Concertgebouw Orchestra plays a Wagenaar Overture on 68237. Eipperle and Taubmann sing "Bartered Bride" arias on 68292. Dresden Philharmonic plays "Don Pasquale Overture" on 57130. Nissen and Wackers sing Act III music of "Die Meistersinger" on 67920. LONDON: London Philharmonic plays "Leonora Overture No. 1" on 5162. RCA VICTOR: Quartaro sings Handel and Giordano on 49-0549; Swarthout sings the "Werther Letter Scene" on 49-0551; Puccini is sung by Pearce on 49-0552, Albanese on 49-0550, Kirsten on 49-0548.

